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DENDRO-PSYCHOSES.

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To trace one of the relations between mind and its environment backward toward its source is the attempt of this paper. The influence of trees on the life of man is the topic. Why have trees played such an enormous part in the emotional and spiritual life of the race? Why do primitive peoples still worship trees and believe them to be powerful spirits, or the abodes of spirits, which rule the destinies of men? Why have the shrines of early religions been consecrated groves? Why were "the groves God's first temples," and the Garden of Eden a plantation of trees?

Children, too, are lovers of trees and flowers, and bestow on them an amount of attention and even devotion entirely out of proportion to the return they get—judging by our cold scientific standards. Even to-day, among peoples of the most advanced civilization and persons of the highest culture, life-trees are common—planted at the birth of a child, and cared for throughout life by the child, the youth, the man, whose life is believed to be intimately bound up with the life of the tree.

If the use and the beauty of trees are not a sufficient explanation of their influence on our lives, we must seek a reason more internal. If there is nothing in the nature of trees which justifies our thought and feeling toward them, then there must be something in the nature of the mind to justify it. If, for instance, the old belief that trees were spirits were shown by later investigation to be true, there would be nothing strange in the human mind having originally come to that conception. It would be merely a step in the advance of science. On the other hand, when such a notion is found to be entirely inconsistent with science, when the thought finds no justification in the nature of external things, but is none the less entertained by all primitive peoples and not originated by the vagaries of an individual thinker, a reason for its existence must be sought in the mind itself. If present circumstances are not a sufficient reason for present thoughts and feelings, then mind must have been, in some period of its evolution, subject to influences which left an impress that developed into more definite forms of instinct or action. It is not to be expected that any of these can be

traced with certainty to their sources. The path from brute-hood through savagery and barbarism to civilization and culture has been too long and devious to be retraced in thought. But the traveller bears certain marks which indicate the course of his journey, and at some of these we shall take a glance.

There is unquestioned evidence in man's body of his having been, in far-gone ages, a dweller in the trees. We may review briefly the biological facts in support of this.

I.

BIOLOGICAL EVIDENCE.

"Man, with all his noble qualities, with sympathy which feels for the most debased ; with benevolence which extends not only to other men, but to the humblest living creature ; with his god-like intellect which has penetrated into the movements and constitution of the Solar system ;—with all these exalted powers, man still bears in his bodily frame the indelible stamp of his lowly origin."¹

It is not to-day claimed that man is descended from an ape ;—at least not from any existing species, nor yet have any fossil remains been discovered which would connect him with any of the present forms. He has marked resemblances to all the four species of anthropoids, but differences also, so prominent that it would be absurd to call man the issue of any one of them. He seems, moreover, to be not much more closely related to one than to another of these species. "The gorilla approaches nearest to man in the structure of the head and foot, the chimpanzee in important structural details in the skull, the orang in the development of the brain, and the gibbon in that of the thorax."² Though none of these is the direct ancestor of the human race, yet evolutionists claim that man and the anthropoid apes did have a common origin. It is the "fundamental law of organic evolution" that ontogenetic development follows the line of phylogenetic—, "the history of the germ is an epitome of the history of the descent."³ "Every creature that lives climbs up its own genealogical tree before it reaches its mature condition."⁴ Taking, then, any two individuals whose ancestry had diverged in earlier generations, we should expect to find them resembling each other less and less as they grew toward maturity ; just as the two species or genera, of which our individuals were respectively represen-

¹ Darwin : Closing paragraph of *Descent of Man*.

² Haeckel : *Evolution of Man*. London, 1879. Vol. II, p. 181.

³ Haeckel : *op. cit.*, Vol. I, p. 6.

⁴ Drummond : *Ascent of Man*, 3rd ed. New York, 1894. p. 72.

tatives, became more and more unlike after separating from the parent stock. At birth the similarities ought to be numerous, since the given individuals were then exhibiting the characteristics of their respective types at a time when these types were not yet widely divergent; in adult life, on the other hand, these similarities would be fewer, as the individuals now represent the present widely separated types. This is exactly what we find in the case of men and apes. The baby ape is much nearer to the human child than the full-grown ape is to the adult man.¹ Extending the comparison, we can of course say that the adult man is farther from the young ape than the mature ape is from the new-born child, because the line to which man belongs has advanced enormously as compared with the ape, from the time of their common ancestry onward, and consequently the child soon passes the highest stage to which the most intelligent of the quadrumana has attained.

This relationship may profitably be followed out, so far as it applies to the arboreal life of man's progenitors, and the comparison just made can of course be extended to embryonic life, as the child recapitulates before birth the greater part of the structural development of the vertebrate series. In all the anthropoid apes the arms are longer than the legs,—notably so in the gibbons, who can easily touch the ground with their fingertips when standing erect. In man, on the contrary, the legs are much longer and larger than the arms. The reason is doubtless because of the relative amounts of work to be done by these members. Man's legs must support the whole weight of his body, and have been developed accordingly, but monkey life being chiefly arboreal, locomotion is largely by means of his hands, and the upper extremities have correspondingly increased in size and strength. But this relation does not hold in the human infant at and before birth; he shows his closer affinity with the lower species, and his earlier mode of existence. The height of the adult is three and a half times that of the new-born child, with arms in the same proportion, whereas the legs are five times as long as those of the child. The approximation of the human infant to the proportions of the anthropoid is still more strikingly shown by comparing measurements at an earlier period. In a foetus of $8\frac{1}{2}$ inches length the arms are actually longer than the legs, and reach to the knees when the body is erect. At the middle of gestation, therefore, when the proportions most closely resemble those of the anthropoids, the arms grow more rapidly than the body and the legs; in the latter part of the period the legs again

¹ Vogt: *Die Säugethiere in Wort und Bild*, p. 49.

gain, and at birth are longer than the arms,¹ though not to such an extent as in adult life, which is therefore farther removed than child life from man's nearest allies. In the relative lengths of upper and forearm, also, the infant has not diverged so widely as the adult. Savages show the same relations as children between upper and lower limbs—a relation intermediate between apes and adult Europeans. The forearm of the negro is a little longer actually and relatively than that of the European, and the proportion of arm to leg is greater in the negro.

Not only the length but the strength of the arms at birth is remarkable. The clinging power of infants often surpasses that of adults, and goes to show that our ancestors were tree-dwellers and that the children clung to their mothers whose hands were occupied in climbing from branch to branch. Young apes, as a rule, hang beneath their mothers, holding on by the long hair of their shoulders and sides. Those that failed to do this would tumble to the ground or be left behind and fall a prey to enemies from which the mothers were fleeing. Hence, natural selection would bring about a high degree of this clinging power. Of 60 cases of children, less than one hour old, reported by Dr. L. Robinson,² all but two were able to sustain the whole weight of the body at least 10 sec., 12 of these for one-half minute, and 3 or 4 for nearly 1 min. At the age of four days nearly all could hold themselves suspended for half a minute. This power reached its maximum at two or three weeks of age, when several were able to hang suspended for 1.5 min., two for over 2 min., and one three weeks old for 2 min. 35 sec. One child held its weight for 5 sec., with the left hand alone after letting go with the right. This extraordinary strength is wholly purposeless in infants at the present time, and is all the more remarkable when we reflect that the child is otherwise at this age, and for long afterwards, a mere "sprawling ball of helplessness."

Even the reflex act of grasping an object which touches the palm can be of no value to the child now, except to point to a former period when life itself depended upon it. The child's employment of only its hands in the first stages of creeping, while the feet are dragged behind, points to a predominant hand-use in the trees. The child's tendency, mentioned by Holmes, James, and others, to pick up objects with its mouth when it is creeping and its hands are employed, is believed to be a relic of prehuman ancestry.

In no case during the foregoing experiments did the lower

¹ Huxley: *Anatomy of Vertebrated Animals*, 1881, p. 417.

² Nineteenth Century, Nov., 1891. *Darwinism in the Nursery*.

limbs of the infant hang down and take the attitude of the erect position, but were flexed almost at right angles to the body.

In the use of its hands the baby shows a kinship to tree-climbers. In grasping an object it does not put the thumb on the opposite side, but takes the object between the fingers and palm. Arboreal ancestors in going from bough to bough would strike the branches palm first from above downward, grasping with the fingers.¹ In the species of monkeys which live most exclusively in the trees—the *Ateles* in America, *Colobus* in Africa, and *Hylobates* in Asia—the thumb has atrophied from disuse, and the fingers have grown together, because the whole hand has been used merely as a grasping hook. The feet of sloths, the most arboreal animals in the world, are noticeably hook-like.² It is said that in children the power to extend the hand perfectly straight is frequently not acquired till the age of six or seven, as a result of thousands of years of bough-grasping.

The chimpanzee and the orang, when going on all fours, support themselves usually on the backs of their closed fingers, and rarely on the palms of their hands. They are in a transitional stage from quadrupeds to bipeds. Young children in the same way turn their toes under.

Evolution in man's hand has taken place in two ways: by increasing the mobility of the thumb and fingers and their power of independent and varied action, so necessary in delicate work; and by reducing the number and the strength of the muscles used in prolonged grasping. A special flexor muscle for the thumb has been split off from the fibres of the deep flexor that bends the terminal joints of the fingers; in most apes and in some men these two form a single muscle. Along with this appearance of a new muscle is the disappearance of another, the *palmaris longus*, which was an important aid in climbing, keeping the fingers together without independence of action.³ In negroes neither of these changes is so fully carried out as in Caucasian races. The power of independent toe-movement in children, and the wide separation of the great toe from the others, are also evidences of Simian relationship, and point to a period when the feet were used more for picking up objects, and the hands for supporting the body. These characteristics were afterward lost because not needed in most civilized shoe-wearing races, where toes are

¹ Buckman: *Babies and Monkeys*. Nineteenth Century, Nov., 1894.

² Darwin: *Descent*. New York, 1878. p. 51.

³ Baker: *Address* in Proc. Amer. Assoc. for Adv. of Sci., 1890, p. 351.

becoming rudimentary and are often found grown together. But many bare-footed peoples make skillful use of their toes. By the help of their very mobile toes Chinese boatmen are said to be able to pull an oar, Bengal artisans to weave, and the Carajans to steal fish-hooks.¹ Nubian horsemen hold the rein between their toes. Many lower races—Negroes, Malays, Polynesians, and American Indians—grasp the branches of trees with their toes when climbing, and Büchner says the natives of New Guinea are able to climb from branch to branch without the use of their hands.² New-born children of even the highest races can hold an object as firmly with the great toe as with the hand.³ The bottom of a young child's foot, when the toes are bent downward, shows deep creases corresponding to the lines of the hand. The most marked of these is where the chief folding-in of the skin would take place when the toes were habitually clasped around an object such as a branch.⁴ This cannot be explained as being of any use to the child, as it disappears when the foot begins to be used for locomotion and is scarcely visible in adults, even when the toes are flexed to the utmost.⁵ Such a change from hand to foot is not found in other animals, whose phylogenetic history has not included the use of the foot as a prehensile organ.

An infant's foot is much flatter than an adult's. The arch of the instep, which is necessary to steadiness and ease of locomotion, is not yet attained. The negro, too, has such a foot, which further resembles the monkey's in being longer than the European's.

Infants' feet are very noticeably turned inward. This is even more marked in the embryo, but disappears soon after the child learns to walk. In the quadrumana the feet are similarly turned inward as a convenience in grasping branches.⁶ Thus, what is normal in the fully developed lower species, is also normal in the embryonic stages of the higher, but would be abnormal if found in the mature form. Many pathological conditions instead of being freaks of nature, are simply cases of arrested development, representing structures or functions which are perfectly natural in a lower species.

Even in walking, the outside edges of the ape's feet are used,

¹ Hurley: *Man's Place in Nature*. New York, 1883. p. 104.

² *Position of Man in Nature*. For authentic statements of the delicate manipulation of which the toes are capable through training, see Virchow's *Beiträge zur Kenntniss der Bewegungen des Menschen*, Würzburg, 1883.

³ Haeckel: *op. cit.*, Vol. II, p. 170.

⁴ Robinson: *The Meaning of a Baby's Foot-Print*. Nineteenth Century, May, 1892, p. 795.

⁵ *Ibid.*

⁶ Romanes: *Darwin and After Darwin*. 1892. Vol. I, pp. 77-8.

and bowleggedness is very apparent, as also in the child just beginning to walk. This position of the foot is inconvenient for locomotion, however advantageous for prehension, and has undergone gradual modification as man has attained the erect posture, the large toe losing its independent action and its grasping power, and the sole of the foot becoming horizontal, with an arched instep. Along with this, other correlative changes have been brought about—the vertebral column has acquired its double curvature, giving it more elasticity and preventing jar to the whole frame, and especially to the head; the thorax and pelvis have been modified in shape; and the calves have been greatly developed by the additional work thus required of them. Huxley, quoting from an old English account,¹ tells of a species of ape, the Pongo, that “differeth not from a man but in his legs, for they have no calfe. Hee goeth alwaies upon his legs, and carrieth his hands clasped in the nape of his necke when he goeth upon the ground [which is interesting, as probably helping to bring about the double spinal curvature]. They sleepe in the trees and build shelters from the raine.” The thin legs and large arms of the Payaguas Indians are attributed to the fact that many generations of them have passed almost their whole lives in canoes, with no work and little movement for their legs. An almost total absence of calves is a characteristic of many primitive races, especially of African and Australian blacks,² and is adduced in evidence of their nearness to ape-like ancestry.

The upright position, relieving the hands from any part in locomotion and leaving them free for the use of tools, has no doubt in large measure been the means of giving man “dominion over every living thing that moveth upon the earth,” and in a real sense his “heaven-erected face” has brought the possibility of a moral nature and the promise of ever-ascending ideals.

The erect posture has been brought about chiefly perhaps through curiosity. When the gorilla wishes to see more distinctly the approaching hunter he rises to the upright position.³ Monkeys and rabbits also stand erect to look at distant objects. “How recent this change is [in man], how new the attitude still is to him, is seen from the simple fact that even yet he has not attained the power of retaining the erect position long. Most men sit down when they can, and so unnatural is the standing position, so unstable the equilibrium, that when slight-

¹ *Purchas his Pilgrimes*, 1625. Quoted also by Büchner in his *Man in the Past, Present and Future*. London, 1872.

² Wallace: *Australasia*. London, 1880, 2nd ed., p. 86. Hartman, *Anthropoid Apes*. New York, 1886. p. 102.

³ Winwood Reade: *African Sketch Book*, Vol. I, p. 151.

ly sick or faint, man cannot stand at all.”¹ A further evidence of the comparative recency of attaining the erect attitude is the fact that children must *learn* to walk, while animals are able to do this at once. Children, however, make the alternate movements of the legs, necessary for walking, long before such a movement is of any service. It is the bipedal balancing which must be learned with such difficulty. The arms of a child, too, make alternate movements when the palms are gently stimulated. That is to say, both arms and legs inherit, from a million years of such employment, the necessary movements for quadrupedal locomotion, but the additional adjustments required in the upright position have not yet become instinctive, in the few thousand years of practice.

The higher apes' dread of water and the loss of their ability to swim are no doubt the result of their life being exclusively arboreal.

The disposition of hair on the arms furnishes undeniable evidence of arboreal life. The rudimentary hair of the arm from wrist to elbow points upward, and from elbow to shoulder downward. This occurs only in man and in anthropoid apes and some American monkeys. Wallace has observed that the orang, sitting in trees, places its hands above its head with the elbows pointing downward, the hair then serving as a thatch to the rain. Livingstone relates of the gorilla this same habit of sitting “in pelting rain with his hands over his head.” This acquired characteristic in man is no longer serviceable, but being in no way detrimental it is not eliminated by natural selection.

Another evidence of man's descent, furnished by embryology, is the lanugo or covering of somewhat long dark hair found on the foetus about the sixth month. It extends over the whole body, except the soles and the palms—which are also bare in the quadrumana—but is usually lost before birth, serving therefore no present purpose. It is frequently quite different in color from the later permanent hairy covering. At this stage the human skeleton approaches most nearly to the Simian type. Idiots, who resemble the lower species of primates, mentally and physically, are often much more hairy than normal persons.² Many of the higher apes resemble man in the disposition of hair on their bodies. In most of the higher Old World apes the face is nearly or quite bare, while the hair on the back of the head is usually long. On the outer sides of the limbs it is much more abundant than on the inner, which is paralleled by the fact that not unfrequently, according to Haeckel, men of

¹ Drummond: *loc. cit.*, p. 194.

² Darwin: *Descent*, p. 601.

Semitic race have the shoulders, back, and outer sides of the limbs abundantly covered with hair. African races also are disposed to be hairy.¹

The flat noses of babies, with the breadth across the nostrils equal to the length of the nose, and the pouch-like cheeks, which are retained later, though not required in the human species for storing away food, as when hands were required for climbing, have been regarded as vestiges of lower types of animal.²

Savage peoples ought to show, both in physical structure and mental endowment, a closer correlation with man's nearest allies than is found in civilized races. Some instances of this have already been given: as in the relative length of arms and legs, the greater strength of the arms, the absence of calves. Along this line of evidence there are other facts to be adduced, anatomical, physiological and psychological.

The spinal curvature is increasing. In the Simian the lumbar curvature is backward, in the European it is forward. Even in negroes the collective measurement of the posterior faces of the five lumbar is greater than the anterior (106 to 100); in the white, the anterior faces exceed the posterior (100 to 96).³ The humeral torsion is also increasing. In the stone age it was 152°; in the modern European it is 164°. The humerus was formerly set so that the hollow of the elbow looked inward rather than forward; and as the functions of the arm became more various the lower end of the bone twisted outward around the long axis. By this means the palm of the hand was turned to the front and adapted to a wider usefulness. Not only does this torsion become greater as civilization advances, but there is a difference even between the right and left arm,⁴ as a result of generations of righthandedness. As a further result of the increased use of the hands, the scapula has widened to give a more extended attachment for the muscles used in movements of hand and arm. The scapular index (ratio of breadth to length) is highest among white races, less in infants, negroes, and Australians, and still less in anthropoid apes.⁵

The great toe of the Annamese, which projects at a wide angle from the foot, is mentioned contemptuously by the Chinese 2285 B. C., the race being called the "cross-toes." The atrophy of the little toe is evident by comparing shoe-wearing races with the bare-footed and with children, whose toes run much

¹ Johnston: *The River Congo*, 3rd ed., 1884, p. 414.

² Buckman: *loc. cit.*

³ Osborn: *Present Problems in Evol. and Hered.* Smithsonian Report, 1892, p. 313.

⁴ Baker: *loc. cit.*

⁵ Baker: *ibid.*

more squarely across. Pfitzner¹ finds that the little toe is losing a phalanx, the two end-joints in the skeleton being fused in 41.5% of women and 31% of men. The progressive divergence of the form of the female pelvis from the male in higher races, is shown by the fact that it becomes increasingly difficult in lower races to distinguish the female skeleton from the male. The relatively large female pelvis would for perfectly obvious reasons be preserved by natural selection.

II.

PSYCHIC REVERBERATIONS.

When we pass from the physiological to the mental the evidence cannot be so definite. At best it cannot amount to certainty, but only to probability. There are no psychic rudimentary organs to be studied on the dissecting table, and no fossil remains of mind embedded in the rocks of the Miocene and Pliocene periods. There are products, to be sure, of mental activity to be found in the earliest implements of the rude stone age, but the inference from material products to mental processes is vague and uncertain. Savages are scarcely to be found who are still in the palæolithic age, and even if they were, that would be an enormous advance on the intellectual existence accompanying tree-life. Farther back than these material witnesses to man's advancement, and the evidence furnished by present primitive races, we cannot go. Doubtless a previous age of wooden implements and instruments existed, the beginning of which is shown by the apes who use a club or a branch of a tree as a weapon, but the lack of durability in such material has left us no evidence; and man himself, for ages after emerging from such a condition, could leave no record in chronicle or tradition.

Furthermore, though the child may recapitulate in some degree the mental evolution of the race, the interpretation of the child's mental states is extremely difficult and unsatisfactory. We cannot project ourselves into the child's consciousness. We can only interpret the manifestations of his mental life by employing the adult mind as a standard, and our conclusions are more and more untrustworthy according as the intelligence to be studied is farther removed from the standard of measurement. There is even a further chance of error: our standard—the mature mind—is itself an abstraction, reached by inference, using our individual mind as the primary standard. We *must* judge others by ourselves; there is no other way open.

But in spite of the disadvantages of the method, and the con-

¹ *Nature*, Vol. XLII, p. 301.

sequent uncertainty of the results, some conclusions of reasonable validity can perhaps be reached. In the customs of savage tribes, in the traditions of barbarous peoples, in the myths of civilized nations, there are survivals from a dateless age, which give us glimpses of the intellectual condition of man, while as yet he was only emerging from brutehood.

Leaving aside the folk-lore and the social and religious institutions of man, the present section attempts to point out certain vestigial remains in the mind, and ventures to suggest, as the most probable explanation, a long-since deserted home in the trees. "Do we not," says Dr. Hall, "dishonor the soul by thinking it less complex or less freighted with mementos of its earlier stages of development than the body?"¹

Structures and functions change in compliance with a changed environment, or accidental variations arise and find themselves more in harmony with the surroundings. These, therefore, persist and widen; appearing in individuals, they soon become the characteristic of varieties, species or genera. Thus what was at first merely a chance variation, or a modification through environment, by either an intelligent or an unconscious adjustment of the organism, becomes stable in the race by transmission, that is, becomes an instinct. As we progress up the animal scale more instincts are called into being, as the environment becomes more complex—the growing complexity demanding new adaptations. Among higher species conscious adjustment probably plays a much larger part in the origin of particular instincts, and blind natural selection a smaller part.

The decay of instinct, on such a theory, would of course be brought about by a change of surroundings which would call for a modification of some of the life-habits of the species, and the reverse process would be by the same means in general—not necessarily in each instance—as were employed in originating and perfecting the instinct; namely, natural selection and conscious or unconscious adjustment. If in the new circumstances any given instinct were harmful to the well-being of the race, the non-survival of the unfit would soon result, unless a change in the organism could be effected which would bring it into harmony with the new conditions. An obvious exception to this, of course, would be the case in which a structure, whose function had become useless or detrimental, was enabled to maintain or regain its place of honor among the other members of the organism by exchanging its old functions for a new and useful one. But provided the old instinct under the new

¹ *A Study of Fears*: AMERICAN JOURNAL OF PSYCHOLOGY, Vol. VIII, p. 147.

conditions were merely useless, not harmful, and wasted none of the energy of the body which would have been available for other purposes, it would not then be eliminated by natural selection, and might remain for thousands of generations before becoming completely atrophied. So long as vestiges of it remained, we might hope to awaken them into activity by re-inducing the conditions under which the instinct was formerly active. This is scarcely open to direct experiment, but nature in some degree reproduces for us these conditions in the organism, though very rarely in the environment. Such opportunity for observation is given us in children, savages, pathological cases, and in normal adults under conditions in which the higher faculties are not exercising due control, as in sleep. There are cases, even, as in unreasoning and entirely baseless fears, where the exercise of our strongest will is unable to cope with the strength of the instinct.

In the child the higher centers are not yet called into activity. Mentally he is the equal at about fifteen months of the mature ape,¹ and might be expected to show some of its characteristics, and the more so as the environment tended to call forth such reflexes, and the child's strength were equal to the task of responding. The same would be true of savages, without the limiting condition of physical strength, if any could be found so low intellectually as to approach the apes. In certain pathological cases a similar result is reached by an opposite process. Instead of the brain and the mind being built up only to a certain level—using "level" somewhat figuratively, since the intellectually higher and lower in function correspond only roughly to the literally higher and lower in structure—the higher centers have been broken down until the given level is reached. This destructive process follows the law of regression—the reverse of the constructive process. The last to be acquired is the first to be lost. The higher the development the greater is the danger of reversion, as complex products are more unstable than simple ones. Now, instincts which have been active for many generations have become deeply rooted in the very constitution of mind, and although they may have fallen into disuse, or been overgrown and buried so deeply that their very presence is unsuspected, yet when disease has swept away the higher levels, and attacks these, they once more regain their functioning and assert their power, and we get a condition of things similar to that of organisms which have only reached this point in their upward journey. Many idiots are cases of arrested development ; senile dementia and diseases which affect the brain present instances of the breaking-down

¹ See Romanes' chart in his volumes on Mental Evolution.

process. A good illustration of this law of reversion is found in people who emigrate to a foreign land in childhood or early youth, and use the language of the new country the rest of their lives, to the utter forgetfulness of their native tongue, but who revert to their earliest speech on their deathbeds. In patients who have been for years insane, a fever will sometimes restore sanity, and during this restoration there will be a perfect memory of things happening before insanity came.¹ That is, the later-formed strata, the deranged centers, are broken down by the attack, and the earlier normal formations are reached, whose functioning brings a restoration to former conditions. We have only to carry the process a little farther down to reach brain levels which represent ancestral modifications. The possibility of such centers being present but inactive is seen from the fact that certain normal instincts do not come into action till maturity. Along with them often appear other mental characteristics which are directly hereditary. At puberty, for instance, peculiarities of thought or feeling directly traceable to forefathers, are frequently developed. Finally, in dreams the will is dormant, the highest centers are, as a rule, inactive, but the lowest brain levels, with the spinal cord and the nerves, only slightly relax their functions, and many reflex acts, therefore, take place. The parts of the brain which distinguish man from the lower animals are much more likely to be inactive during sleep. In sleep, therefore, the tendency is stronger to show atavistic characteristics, both in our attitudes and in our dreams. The visceral and other functions intrude on thought in our waking hours, but their presence on the threshold is, for the most part, disregarded, because our mental reception room is too constantly crowded with guests of a higher caste; but when these have all retired, and consciousness seeks rest, the less honored visitors enter unbidden.

The remainder of the chapter will be devoted to giving examples illustrative of these principles.

Of certain instincts and emotions, then, which serve no present purpose, we must seek an explanation far back when conditions of life differed widely from those of to-day, and when the struggle for existence involved fewer of the elements of higher civilization. An instinctive fear of wild animals, or what has less present justification, the fear of reptiles, may well have arisen, through natural selection, at a time when safety, and even life, depended on flight. Monkeys are known to have a great horror of snakes. The serpent, better than almost any other enemy, can follow an animal up a tree, and attack its

¹ Forbes Winslow: *Obscure Diseases of the Brain and Disorders of the Mind*. 4th ed., 1868, p. 59.

young. From some such enmity and struggle for life, lasting many generations, must have arisen our unfounded fears of the snake.

The percentage of these fears of reptiles, though standing second in Dr. Hall's classified list, is yet exceeded by the fear of thunder and lightning, the frequency of which is out of all proportion to the actual danger. We must therefore seek elsewhere than in present conditions for the rise of this fear ; and may it not be that it dates back to tree-dwellers, who would be much more exposed to such a danger? Lightning, as is well known, is much more liable to strike a tree, than an open plain, on account of the former being a better electrical conductor than the air, and having a tipped summit. This danger would still persist through the extended period of man's descent from the trees, and as long as the species had the habit of huddling together beneath the branches as a protection from the storm. It is said that children and savages fear the thunder rather than the lightning, but this of course in no degree affects the argument, inasmuch as it is the thunder which is believed by the primitive mind to be the destroying force.

The fear of high winds which is very common even in districts never visited by tornadoes, may also be explained by the added danger, to tree-natives, of such winds as uproot or dismember the trees. This continuous open-air life would be much subject to other atmospheric influences, and the psychic effects of the weather would be very marked. The constant change of temperature and variations of moisture would be all-important factors in man's physical well-being, and would leave a lasting impress on the constitution of his mind. Is this why the weather has come to be the never-neglected topic of conversation among all races?

The fear of falling is instinctive, as it is found in children who have had no individual experience to justify it. If an infant be dandled up and down on the arms, it will be at rest while being raised, but when descending its struggles will show a sense of danger. Such fears of falling (barophobia), as well as the child's "monkey-like propensity to climb everything, everywhere," may be reverberations from different stages of a life in which climbing and falling were daily experiences.

The fear of strangers, instinctive in children at a certain age, has no reason in the present nature of things, as the children have received only kindness from every one. Such a fear must therefore have survived from the time when it brought safety,¹ when every man's hand was against his

¹ Robinson : *Darwinism in the Nursery*.

neighbor. To the same origin is attributed the game of hide-and-seek, so common, so instinctive one might say, among children, they take to it with such readiness without teaching, when only just able to walk. Hiding behind a chair or curtain, and pretending to be greatly alarmed when discovered, is only making play out of the formerly serious business of life, the furniture of the nursery being substituted for the trunk of a tree behind which the body would be hidden, the eyes protruding for a momentary glance at the enemy, and then quickly withdrawn again.¹ The instinctive holding of the breath when the seeker comes near may have been purposive, the breath otherwise being sufficient to betray the hider's position. The play of animals is very often mimic war, and the games of children are not unfrequently mere relics of religious ceremonies, social customs, or habits of life, whose significance has long since departed.

Fear in the woods is not entirely accounted for by the possibility of present danger, for even adults have traces of such timidity when they know there is absolutely no danger near. Schneider suggests that this is a relic of the period of savagery when darkness and forests were inseparably associated with danger. Darwin had already attributed his child's fear of large animals to the hereditary effects of the real danger of savage life. Agoraphobia, too, probably had its origin when safety depended upon keeping hidden, and running across open spaces was an exposure to be avoided.

The sleep of children shows physiological tendencies which suggest certain ancestral modes of life. Young children when left to themselves will naturally go to sleep on their stomachs, with their limbs curled under them, or often using one arm as a pillow, which is exactly the position adopted by oranges and chimpanzees. West Indian mothers and nurses lay children down in this way. Some savage tribes sleep with the head bent down upon the knees, just as monkeys do.²

Putting babies to sleep by rocking is probably taking advantage of a rhythm which has become ingrained through long ages of swaying in the branches of trees, which would be the natural accompaniment of sleep, with creatures of arboreal habits.³ Rhythmic movements of even short duration leave their imprint on the organism. Sailors after long voyages are unable to sleep well on land, having become accustomed to the rocking of the vessel. Even a landsman, after a voyage of only a few hours will have for some time afterward a feeling of

¹ *Ibid.*

² Robinson: *19th Cent.*, Nov., 1891.

³ Buckman: *loc. cit.*

swaying to and fro when sitting or lying down. The rhythm of walking is often kept up by soldiers on the march when asleep, and therefore entirely without conscious supervision. Plants as well as animals are susceptible to impressions from rhythmic influences. Francis Darwin and Miss Pertz have shown that a plant will continue a rhythmic movement which it has been compelled to obey for a short time, and will curve against gravity though itself a geotropic plant. Heliotropic plants curved away from the sunlight for two half-hourly intervals, separated by one of curvature toward the light, so strongly in a short time had the artificially-induced rhythm been impressed upon them. We may therefore fairly conclude that children, or even adults, will still show traces of rhythms which played upon the organism for perhaps thousands of generations. Evidence is furnished by the regular swaying back and forth of children when standing long, and the similar movements of imbeciles, in both of whom the higher centers are not active for the inhibition of such useless movements.

May it not be that even adult methods of inducing sleep are effective because of this racially-ingrained connection between rhythmic movement and the fading of consciousness—such methods, for example, as counting, watching the long line of imaginary sheep skip over the bars single file, listening to falling drops of water, or imagining one's self rocking on the bosom of a lake? One might even go farther and say that the somnolent effect of all monotony of either thought or feeling is, if not induced, at least strengthened, by thousands of years of swaying in the trees. It has been suggested that the most common of all our nursery ditties, the

Rock-a-bye baby in the tree top, etc.,

and the somewhat similar German

Schlafe, schlaf ein, mein Kind!
Horch! da draussen der Wind,
Wie das Vöglein im grünen Baum
Wiegt er auch dich in Süssem Traum

—that these bear evidence of some lingering traditions of a race of tree-dwellers.

The Lithuanian boy Joseph, who was found among the bears and had animal desires and appetites fully developed, in going to sleep always squatted in a ball and rocked himself.

Darwin gives cases of hereditary habits shown in sleep. Quoting from Galton he tells of a gentleman who had the trick of raising his right arm slowly in front of his face and then dropping it with a jerk across the bridge of his nose. This happened only when he was sleeping soundly. His son had the same habit, and passed it on to a daughter of the third

generation. Ribot speaks of a man who was in the habit of going to sleep with the right leg crossed over the left, and one of his daughters constantly assumed that posture in the cradle. In this way ancestral experiences may bring about certain tendencies in the nervous constitution, which will be manifested, though entirely useless, whenever the conditions are reinstated which originally gave rise to such movements.

The climbing instinct of boys—which indeed is shown by girls too at the age when they are not troubled by oversensitiveness—has been regarded by Darwin as a relic of former habit. The baby shows this also in a remarkable degree in his “insane desire to climb up-stairs.” The purposeless spontaneous movements of infants are probably rudimentary traces of functions which were once of importance.¹ The restlessness of children, which gives them so much pleasure in mere movement, may also be an inheritance from the days when it was impossible to be still.²

Suggestibility, which shows little conscious control, and is therefore indicative of a low degree of mentality, is remarkably strong in monkeys and children, in lowest primitive man, congenital idiots and hysterical subjects. In a child of six months there is no such thing as mental inhibition present. The beginnings of it appear at one year of age. But during all the earlier years the inhibitory centers are not fully developed, hence the tendency to imitation is very persistent. In certain diseases this imitation gets to be a mania; in latah the patient repeats everything said and done in his presence, and while knowing the absurdity, or even the immodesty, of his actions, is entirely unable to inhibit the movements.³ The imitative-ness of the monkey is equalled by some of the lowest savages. Among the Lapps Hugstrem found individuals who imitated every movement of those who talked to them, as well as the expression of the face.⁴ The medicine-men and sorcerers among primitive people assume many ape-like attitudes, in the mental excitement of their contortions and dances. Relieved from the inhibitions normally imposed by the intellectual operations accompanying the functioning of higher brain centers, the lower centers, representing more racial and earlier-acquired instincts, have fuller sway, and the actions illustrate reversions to earlier types.

The stories told of children who have been lost or have wandered away into the woods, and have lived there for years in

¹ Mumford: *Survival Movements of Human Infancy*, Brain, Autumn, 1897.

² Buckman: *loc. cit.*

³ Marie de Manacéine: *Sleep*, p. 120.

⁴ Manacéine: *op. cit.*, p. 119.

companionship with animals, are for the most part unreliable, but when well sifted still leave an authentic residuum. Such persons show reversions to types much farther back than primitive man. They are expert climbers, usually run on all fours, and can only be taught, after much effort, to assume the upright position. They lap water with the tongue, and have a remarkably developed sense of smell, but are entirely destitute of feelings of modesty.¹

In idiots the higher volitional functions are absent, and their restraining hand—which is heavy upon all of us, but unfelt because of its continual presence—is lifted from these unfortunates, and they often show by action and expression a forcible likeness to apes. The most hopeless cases, which have much less intelligence than apes, show such atavistic characteristics as the vacant stare, gluttonous appetite, thick everted lips, ill-formed large ears, fingers long and slender.² Attention, judgment, foresight, will, are entirely wanting. Those, however, which show a less degree of idiocy are usually active, alert, mischievous, imitative, intractable. When no effort is made to educate them, their muscular activity, in the necessity of finding an outlet, often makes them little demons.³ Sollier tells of a boy of ten who has never walked normally, but who climbs into trees.⁴ Clouston describes a girl who has from childhood beaten her head with her hands as the gorillas beat their breast. She kneels down and laps water with her tongue. Her face is beast-like in its appearance, and she lacks even a rudimentary sense of decency.⁵ Krause speaks of the ape-like boy, observed by him, as being very supple and fond of climbing, and having great strength in his hands and arms. His hands had a horny appearance, like those of a chimpanzee. His walk was unsteady, the great toes of both feet being at an angle to the foot. He often stamped his feet and clapped his hands, making a grunting noise like a gorilla. His imitative tendency was especially marked, and all his movements strongly resembled those of apes.⁶ Hartman also observed a semi-idiotic boy, whose shuffling gait, gurgling voice unable to utter words, and habit of striking with his closed fingers on

¹ See Ireland, *On Idiocy and Insanity*, London, 1877; Rauber, *Homo sapiens ferus*, Leipzig, 1888; von der Linde, *Kaspar Hauser*, Wiesbaden, 1887; Tylor, *Wild Men and Beast-Children*, Anthropological Review, 1863, p. 21, etc.

² Bucknill and Tuke: *Manual of Psych. Med.* London, 1879.

³ Clouston: *Mental Diseases*. London, 2nd ed., p. 285.

⁴ *Psychologie de l'Idiot et de l'Imbécile*. Paris, 1891. p. 89.

⁵ Clouston: *op. cit.*, p. 283.

⁶ *Correspondenzblatt der deutschen Anthropologischen Gesellschaft*, 1878, p. 133. Quoted by Hartman.

the ground, gave him a marked resemblance to apes.¹ In other cases, of course, such resemblances are very slight, although microcephalous idiots are, as a rule, strong and active, continually gamboling, and fond of climbing up furniture and stairways.

The male criminal type, which represents the normal in a primitive age, constantly reproduces the psychic characteristics of savages—want of foresight, inaptitude for sustained labor, and love of orgy. Like the lower human races, too, the criminal presents far more abnormalities of anatomy than the average European.² In woman the natural form of retrogression is not crime, but impurity, and in the professionally unchaste the moral reversion is accompanied by physical and mental degeneration. Their use of hieroglyphics in writing and their fondness for tattooing show atavistic qualities. Their cranial capacity is much below the average, and the great majority of them³ show signs of physical degeneration, in asymmetry of face, anomalies of teeth or ears, or in the enormous lower jaws found in three times as large a proportion of them as of normal women. They have also longer hands and arms, and often a prehensile foot.⁴

III.

TREE-WORSHIP.

Passing from the present evidences, in man's body and in his soul, of earlier conditions of existence which have profoundly modified these, let us look at the testimony of the beliefs and customs of mankind. We now pass, then, from individual to social psychology. And first to gain an idea of the widespread belief in tree-spirits, as extended perhaps in space and time as the human race itself. The mythology of the ancients and the folk-lore of the moderns abound in evidence. "Of all primitive customs and beliefs there is none which has a greater claim upon our interest than the worship of the tree, for there is none which has a wider distribution throughout the world, or has left a deeper impress on the traditions and observances of mankind."⁵ The earliest nations of history, the Chaldæans, Persians, Egyptians, Chinese, worshipped trees. The semi-civilized peoples of to-day offer sacrifices and gifts to the tree-spirits. Among the Dyaks of Borneo certain trees must not

¹ Hartman: *Anthropoid Apes*, p. 202.

² Ellis: *The Criminal*. New York, 1890. p. 208.

³ 84% according to Madame Tarnowskaia.

⁴ See Lombroso and Ferrero: *The Female Offender*. New York, 1895.

⁵ Mrs. J. H. Philpot: *The Sacred Tree*. London, 1897. p. 4.

be cut down, or their spirits would avenge themselves on the natives. The Talein of Burmah offer prayers to the inhabiting spirit before felling the tree. The Siamese offer cakes and rice to the takhien-tree when they want to use it for boat-building, and believe that the nymph passes as guardian-spirit into the boat built of the wood. The Ojibwas hear the trees utter their complaint when needlessly cut down. Greek and Roman mythology abounds in dryads whose lives are so connected with that of the tree that they are hurt when it is wounded and die when it falls. The May-day festivals of modern Europe are relics of religious rites originating in tree-worship. The World-tree in Norse legend and in Hindoo mythology, the sacred tree of Buddha, the Paradise trees of the Hebrews, the Persians, the Arabians, the trees from which the human race was born, and into which it passes, all attest the influence which this form of the life of nature has had upon the life of man.

It will be necessary to give in somewhat more detail some of the beliefs and customs regarding tree-gods and tree-demons. The primitive mind is unable to make abstractions to any great extent, or to think of ideal invisible things. Hence, in the earliest conceptions, trees were spirits, and the form of the spirit was that of the tree alone. This is a state of animism and not polytheism. Later when there comes a clearer distinction between spirit and matter, the tree is only the habitation of a spirit which has a more or less human shape, and the symbolic representation of such spirits employs a dress of leaves or flowers or a branch carried in the hand.

The Wanika in Eastern Africa think that every tree, especially the cocoanut, has a spirit, and because it gives life and nourishment, its destruction would be matricide.¹ The Siamese Buddhist monks think that to break a branch of a tree is like breaking a person's arm, and cutting down a tree is dispossessing a soul. In some parts of Austria peasants will not allow even the bark of a tree to be cut, and in felling a tree they always beg its pardon. Some Asiatic peoples offer gifts to a tree before felling it, to appease the spirit, who might otherwise avenge himself for being thus left without a dwelling. In Sumatra, as soon as a tree is felled, a sprout is planted on the stump as a new home for the spirit, and coins are placed on it as a compensation for the disturbance.² The wails of the trees when cut down have been heard even in England not many years back. The sacred grove of Samoa, in which no tree was allowed to be cut, is mentioned by many travellers, and the story is told by the natives of some un-

¹ Fraser: *Golden Bough*. London, 1894. Vol. I, p. 59.

² *Op. cit.*, p. 63.

believing strangers who attempted it, but soon fell ill and died, after seeing blood flow from the wounded tree. That trees were believed to be not simply the dwelling places of spirits but their bodies, is further shown by such accounts as Ovid's of the "sap gushing crimson-red from the wounded bark" of an ancient oak.¹ In Livonia is a sacred grove in which if any one fells a tree it is believed he will die within a year. The life of the Greek dryads depended upon the life of the tree which they inhabited, though they had the power of leaving their abode and wandering at will as beautiful maidens. Similar to this is the legend of Alexander and the flower maidens. In a certain wood enormous flowers grew out of the ground, from each of which leaped forth a beautiful maiden whose singing rivalled the birds and brought forgetfulness of all sorrow. But when the flowers faded in the autumn the life of happiness which Alexander and his Knights had lived in companionship with these creatures of loveliness came to a sorrowful ending.²

The Satyrs of the Greeks and the fauns of the Romans were deities of vegetation to whom offerings of fruit and grain were made, to gain their good-will and thereby abundant harvest. In Saxony elder branches may not be cut until permission has been asked of the *hylde-moer* (elder-mother) who dwells therein, the formula repeated three times on bended knee, being "Lady Elder, give me some of thy wood; then will I give thee also some of mine when it grows in the forest."³ Fairies, elves, and pixies are usually of kindly character, but must not be lightly offended. They are still believed in by many of the peasantry of even Germany and England. The oak is their favorite resort, but in Scandinavia the black dwarfs hold their revels under the elder tree.⁴ A species of Teutonic wood-sprite called the *schrat* were objects of special worship in the earlier centuries of the present era, and had trees and temples dedicated to them, though they were usually wild and shaggy in appearance and elfish in character.⁵

Though there are many wood-spirits of evil or questionable character, yet considering the sacredness of trees in general and the forest-worship of many peoples, the beneficent and god-like character of tree-spirits is far more predominant than the satanic. Evil spirits, however, as well as good, still inhabit the

¹ See Mannhardt: *Baumkultus*. Berlin, 1875. pp. 34, *et seq.*

² Mannhardt: *Antike Wald-und Feldkulte*. Berlin, 1877. pp. 1-2.

³ Folkard: *Plant Lore, Legends and Lyrics*. 2nd ed., London, 1892, pp. 80-81.

⁴ Folkard: *loc. cit.*, p. 67.

⁵ Grimm: *Teutonic Mythology*. tr. by Stallybrass. London, 1882-1888. p. 481.

forests of Europe. The Lyeshy of the Russian peasants somewhat resembles the mediæval pictures of the devil, with horns, hoofs, claws and shaggy hair. The similarity extends to the character also, for the Lyeshy constantly causes travellers to lose their way, by altering landmarks or assuming the likeness of some tree which has formerly been used as a guide. Sometimes the spirit takes the form of a traveller and engages the passer in conversation so absorbing that he forgets his course and soon finds himself in a swamp or ravine, the loud laugh of the demon telling him that he has been duped.¹ The success of the sportsman depends on the good-will of the Lyeshy, so to please this spirit a piece of bread, or a pancake sprinkled with salt, is laid on the stump of a tree as an offering. The hunters of some districts present him with the first animal bagged, leaving it in an oak forest. The Perm peasants offer up prayers to him once a year, presenting him with tobacco, of which he is fond. If any one falls ill after returning from the forest his friends say, "He has crossed the Lyeshy's path." A cure is effected by carrying bread and salt to the forest, and uttering a prayer over the offering.

These evil spirits quarrel among themselves, using huge trees and massive rocks as weapons. Hurricanes are really their combats, and the creaking of branches their voices. The echoes of the wood are their calls to allure unwary travellers to dangerous ground.²

The iron-wood tree of Tahiti is regarded as the embodiment of an evil spirit, perhaps because it has furnished material for all the weapons of warfare in the past history of the people. Connected with the origin of this tree in the island there are legends of a powerful but malignant spirit.³ The Pàdams of Assam think that when a child is lost it has been stolen by the tree-spirits, and as a retaliation they cut down trees until they find it. The spirits, fearing that they may be left without a tree in which to live, give up the child, and it is supposed to be found in the fork of a tree.⁴ In Hadramant it is dangerous to touch the sensitive mimosa, lest the spirit of the plant avenge the injury.⁵ When Omayya and Abi 'Amir, who lived a generation before Mohammed, set fire to a tangled thicket with the purpose of bringing it under cultivation the jinni of the place, in the shape of white serpents, flew off with cries of woe, but

¹ Ralston: *Songs of the Russian People*. London, 1872, 2nd ed., pp. 157-8.

² Ralston: *op. cit.*, pp. 153 *et seq.*

³ See Gill: *Myths and Songs from the South Pacific*, pp. 82-5.

⁴ Fraser: *Golden Bough*, quoting Dalton's *Ethnology of Bengal*.

⁵ Robertson Smith: *Religion of the Semites*. New York, 1889. p. 125.

soon avenged themselves by the death of the intruders.¹ The moss-woman of Central Germany, "loosely clad from neck to foot in a mantle of moss from the maple's root," is another of the unfriendly spirits that are a terror to the peasants, though they may sometimes help industriously in the harvest field.² A Bengal folk-tale tells of a banyan tree haunted by ghosts who wrung the necks of all who were rash enough to approach during the night.³ The Burman hunter deposits some rice and ties together a few leaves whenever he comes across a tree of imposing appearance, lest there should be a Nat or wood-spirit dwelling there.⁴ Among the Bongos of Africa malignant spirits are believed to inhabit gloomy forests, and all old people, especially women, are suspected of having relations with these and of consulting them when they wish to injure their neighbors. With the Niam-Niams, also, the forest is a shelter for evil spirits who are constantly conspiring against man. The rustling of the leaves is the mysterious conversation of these ghostly inhabitants.⁵

The sacred groves of the middle ages and the holy trees which are still worshipped are direct survivals of the tree-spirits of earlier times. It is literally true that "the groves were God's first temples." "Temple means also *wood*. What we figure to ourselves as a built and walled house, resolves itself, the farther back we go, into a holy place, untouched by human hand, embowered and shut in by self-grown trees. There dwells the deity, veiling his form in rustling foliage of the boughs. . . . Here and there a god may haunt a mountain-top, a cave of the rock, a river; but the grand general worship of the people has its seat in the grove."⁶ After the introduction of Christianity among Germanic tribes, as a compromise to heathen customs the places of worship were still in the groves, and only very gradually did the worship of trees give place to a less materialistic form. For some time after conversion the people continued to light candles and offer sacrifices under particular trees. Down to the present, wreaths are hung upon them, and religious dances held under them.⁷ In the principality of Minden on Easter Sunday the young people used to dance around an old oak with loud shouts of joy, and near Wormeln still stands a holy oak which the inhab-

¹ Robertson Smith: *loc. cit.*, p. 125.

² Philpot: *loc. cit.*, p. 67. Mannhardt: *Baumkultus*, pp. 74-86.

³ Folkard: *loc. cit.*, p. 79.

⁴ *Ibid.*

⁵ *Ibid.*, p. 80.

⁶ Grimm: *op. cit.*, p. 69.

⁷ Grimm: *op. cit.*, p. 649

itants of the village visit in solemn procession every year.¹ To the ancient Prussians, Romove with its holy oak, hung with cloths and images, was the most sacred spot in the land. No unhallowed foot could be set in the forest, no tree felled, not a bough injured, nor a beast slain.² In some of the sacred groves, far as the shade extends not a strawberry is picked.³ At Upsala, the old religious capital of Sweden, there was a sacred grove in which every tree was regarded as divine. The common people believe that breaking a bough from an ash is very dangerous,⁴ the ash being, next to the oak, the most sacred of all trees among Teutonic nations. The oak was sacred to the Druid god Buanawr. The mistletoe, "the tree of pure gold," as it was called,⁵ growing on the oak, was gathered with great pomp and solemnity. After due preparation the tree was hailed as the universal healer, and beneath it were brought two white bulls whose horns had never been bound; a priest in a white robe cut the mistletoe with a golden sickle, the falling branches being caught in a white cloth. Everywhere among the Semites, too, the tree was adored as divine,⁶ and one of their modern representatives, the Arab, believes certain trees to be sacred, and accordingly honors them with sacrifices and decorations. They are called *manāhil*, places where angels or jinni descend with dancing and song. From these trees not a bough must ever be plucked.⁷ In earlier times the sacred date-palm was worshipped at an annual feast, and hung with fine clothes and women's ornaments. To the sacred acacia the people of Mecca resorted, decorating it with weapons, garments, ostrich eggs and other gifts. By the Phœnicians plants were esteemed as gods, and honored with libations and sacrifices.⁸ Among the Canaanites every altar had its sacred tree, and in the early Hebrew worship the *ashera*, a planted tree, was a symbol of deity. Even in later times, when the planting of the *ashera* beside the altar was forbidden,⁹ as being associated with heathen customs, the sanctuary was beautified by "the glory of Lebanon" and other evergreens.¹⁰ The cedar has always been regarded by the Jews as sacred, and even to-day the Greeks and Armenians go up to

¹ *Ibid.*, pp. 73-4.

² Grimm: *loc. cit.*, p. 77.

³ *Ibid.*, p. 648. Foot-note.

⁴ *Ibid.*, p. 651.

⁵ Davies: *Mythology of the British Druids*, 1809, p. 280.

⁶ See Sayce: *Religion of the Ancient Babylonians*.

⁷ Robertson Smith: p. 169.

⁸ Robertson Smith: *op. cit.*, p. 169.

⁹ Deut. 16:21.

¹⁰ Isa. 60:13. See also Jer. 3:13. Other tree personifications are found in Judg. 9:8-15; II Kin. 14:9, etc.

the cedars of Lebanon and celebrate mass beneath them, at the feast of the Transfiguration.¹ In the Roman church the number of trees and plants dedicated to the Virgin Mary, the Saviour, and the saints, is too large a list to be enumerated, while at each festival the church is adorned with particular branches and flowers whose symbolism is supposed to be especially appropriate—as the edelweiss, the emblem of immortality, for Ascension Day; the trefoil for Trinity Sunday. The holly or “holy tree” as a Christmas decoration is wide-spread.

Tree-worship is deeply rooted in Malay cosmogony, and on giant trees, or such as have become twined together, a shrine of some kind is always to be found, with offerings to the spirit.² Guatama Buddha is represented as having been a tree-spirit forty-three times in his previous incarnations, and it was under the peepul or bo-tree that he achieved perfect knowledge. It thereby became specially sacred, and its leaves, or its successors, are still gathered and treasured by pilgrims. “The history of the transference of a branch of the bo-tree from Buddhgayâ to Anurâdhapura is as authentic and as important as any event recorded in the Ceylonese annals. Sent by Asoka (250 B. C.), it was received with the utmost reverence by Devanampiyatisso, and planted in a most conspicuous spot in the center of his capital. There it has been revered as the chief and most important ‘numen’ of Ceylon for more than 2,000 years; and it, or its lineal descendant, sprung at least from the old root, is there worshipped at this hour. The city is in ruins; its great dagobas have fallen to decay; its monasteries have disappeared, but the great bo-tree still flourishes according to the legend ‘evergreen, never growing or decreasing, but living on forever for the delight and worship of mankind.’ Annually thousands repair to the sacred precincts within which it stands, to do it honor, and to offer up those prayers for health and prosperity, which they believe are more likely to be answered if uttered in its presence. There is probably no older idol in the world, certainly none more venerated.”³

The sacred tree of Kum-Bum is not permitted to be touched. The bark and leaves are said to contain letters of the Thibetan alphabet.⁴ The Bygas of Central India carefully preserve certain trees and present them offerings of food, clothes or flowers. They will often turn aside before some tree, and

¹ Folkard: *op. cit.*, p. 23.

² Ratzel: *History of Mankind*. Tr. by Butler, London, 1896, Vol. I, p. 471.

³ Fergusson: *Tree and Serpent Worship*, 2nd ed., 1873, p. 59.

⁴ *Nature*, March 5, 1896, p. 412.

bowing reverently implore the protection of the spirit, and offer up, if nothing else is at hand, a torn fragment of the already scanty garment.¹ The Zend-Avesta ordained that the trees which the god Ormuzd had given should be prayed to, as pure and holy; and when Zoroaster died his soul was translated into a lofty tree on a high mountain.² All the uneducated classes in Japan believe trees to be the dwellings of spirits, and graves always have evergreens planted near by, perhaps as an abode for the departed soul. Old trees are especially sacred, and the reverence for Shinto temples is increased by the overshadowing trees. One of the most popular dramas of Japan is a play in which a female tree-spirit, in the form of a beautiful woman, marries a human, and for many years keeps secret the dependence of her life upon that of the tree.³ Japanese mythology speaks of holy Sakaki trees growing on the mountains of heaven, and of an herb of immortality on the Island of Eternal Youth.⁴ The Siamese have such dread of destroying trees that all tree-felling is relegated to the lowest criminals. Maspero says that Mussulman and Christian fellahin alike worship at the present day the sacred sycamores that grow on the sands of Egypt, and beside them jugs of water are constantly replenished for travellers, who requite the benefit with a prayer.⁵ The enormous Baobab is worshipped by the negroes of Senegambia. The Susa palm is sacred in Borneo, the Dragon tree in the Canary Isles. The Lotus of the East is found in Northern Africa, India, China, Japan. Persia and Asiatic Russia, and in all these countries is held sacred.⁶

The prevalence of tree-worship in Ancient Greece and Italy is seen by the number of trees dedicated to deities—as the oak to Zeus, the laurel to Apollo, the olive to Athena, the myrtle to Aphrodite. The adventures of Hercules in the garden of the Hesperides resemble the account of the forbidden fruit of Eden. The Argonautic Expedition was undertaken to recover a golden fleece that hung on a sacred tree. The oak grove at Dodona, founded by the Pelasgi, 1600 B. C., remained an oracle down to Constantine's time. The rustling of the leaves and the whirring of the sacred pigeons' wings combined

¹ *Cornhill Magazine*, Nov., 1872, pp. 598 and 601.

² Philpot: *op. cit.*, p. 13. References to tree spirits guarding the destinies of man are found in the *Tales of the Genii*, trans. from the Persian by Sir Chas. Morell, London, 1805.

³ For these facts on Japanese tree-worship I am indebted to my friend Minosuke Yamaguchi.

⁴ Philpot: *op. cit.*, p. 16.

⁵ *Dawn of Civilization*, 1894, pp. 121-2.

⁶ Folkard, p. 23.

to produce the sounds that were interpreted as oracles throughout the whole period of Greek history. Even when the sacred oaks were cut down, a piece of the wood in the boat's prow or keel was able to communicate to the sailors the will of Zeus.¹ As an oracle the Delphian laurel was no less famed than Dodona's oak. The sacred fig tree of Romulus was worshipped for centuries.

Certain trees in England are known as "gospel trees," because it was customary, in marking the limits of the parishes, to stop at remarkable trees, and recite passages from the gospels.² One of the best known examples of tree veneration among the Germans is the "Stock am Eisen," still standing in the center of Vienna. Into this tree every apprentice, until very recent times, before setting out on his *Wanderjahre* drove a nail for luck.³

Among North American Indian tribes the Omahas have two sacred trees, the ash and the cedar—the ash connected with beneficent natural powers and the cedar with destructive agencies. The Athapascans hold sacred the same two trees, because they were the first to be discovered by the gods. In the Osage traditions, cedar symbolizes the tree of life.⁴ Among the Dakotas the tree which is to serve as the sacred sun-pole is cut down and taken to camp with great ceremony, no one touching it on the way or going in advance of it.⁵ Darwin mentions a tree to which homage has been paid by offerings of cigars, bread and meat; and Tylor speaks of a cypress in Mexico, many centuries old, decorated with locks of hair, teeth, bits of colored cloth and ribbon. The Calchaquis of Brazil decorated sacred trees with feathers.⁶

A glance at harvest festivals, May-day celebrations and Christmas customs, shows them to be relics of tree-worship and survivals of the belief in the power of spirits to grant abundant vegetation in fruit and grain.

In earlier times the human representative of vegetation was sacrificed that the divine spirit in him might be passed on to his successor, and thus preserved without the loss of any vigor.⁷ In winter vegetation is interpreted as being enfeebled, and must be slain and resurrected in fresher form. The death of the representative of the tree-spirit was thus for the purpose

¹ Fergusson: *loc. cit.*, p. 17.

² *Flower Lore*, p. 28. "Dearest, bury me under that holy oak or gospel-tree."—Herrick.

³ Fergusson: *op. cit.*, p. 22.

⁴ *Eleventh An. Rep., Bur. Ethnol.*, Washington, p. 391.

⁵ *Ibid.*, pp. 453-7.

⁶ Dyer: *Folk-Lore of Plants*. New York, 1889. p. 37.

⁷ Fraser, Vol. I, p. 240.

of quickening vegetation. In later times and among more civilized peoples, the representative of the spirit of fruitfulness is slain only symbolically, the custom surviving but losing its solemn character. Still later it becomes only a pastime, all knowledge of its significance being lost. The May-day customs of England are a survival of the festival of Floralia, introduced by the Romans. The significance of the custom is clearly seen in the variation of it by which the May-day procession left at each house a small tree or branch, thus bestowing prosperity and fruitfulness for the year.

The decay of meaning from the ceremonies can be traced in the different methods of representing the spirit—first, by a tree alone, then by a tree and living person, later when the savage nature of the rite has died out, by a tree and puppet, and lastly by a person only whose representative character is shown by the dress of leaves, the crown of flowers, or the name Queen of the May.

The autumn festivals are similarly a thanksgiving to the god of agriculture for abundant fruitage, and an invocation of future favor. The Jewish feasts¹ and Christian "harvest-homes" embody the same conception with the grosser elements omitted. The Greek feasts of Thargelia and Pyanepsia were later imitated in France and parts of Germany, by bringing home from the harvest-field on the last load of grain a branch adorned with flowers, ribbons and fruit. In all these customs the tree-spirit is conceived as the spirit of vegetation in general.

The Christmas tree is partly a survival and partly a revival of such customs. In the Christmas festivals of the Harz the maidens dance and sing around a fir tree which has been decorated with eggs, flowers, and other ornaments. Santa Claus, or Nick, is the demon treed in the branches and made to bestow gifts.² In Germany trees are married by being tied together with straw ropes on Christmas eve to ensure their yielding well. There is a similar custom in India. The belief in the fertilizing power of the tree-spirit is seen in the marriage rites of different peoples. In modern Greece the priest is provided with chaplets of lilies and ears of corn, which he places on the heads of bride and bridegroom as emblems of purity and abundance.³ The myrtle, an emblem of purity and fertility, is still used in Germany for the bridal wreath, and in one part of the country the bride wears a garter of flax as an invocation to the spirit of

¹ Lev. 23:39, 40; Ex. 23:16.

² Conway: *Mystic Trees and Flowers*. Fraser's Magazine, 1870, Nov. and Dec.

³ Hilderic Friend: *Flowers and Flower-Lore*. London, 1884. p. 133.

fecundity. The custom in Brittany of giving a branch of laurel to a bride, and in Russia of placing a pine bough in her home, has the same underlying idea.¹ Even the orange blossoms of the present day, in England, France, and America, were first worn by Saracen brides as a symbol of fertility.²

The divining rod, still used in England and in this country for the detection of water-veins, is a survival of the sacred tree, with its magic powers. Rhabdomancy was in earlier times extensively employed in the discovery of minerals or of lost objects, and in bringing criminals to justice. The hazel is the favorite wood, though fruit trees have been largely used. The directions for cutting the bough are often elaborate, reminding one of other ceremonies connected with tree-worship: it must be that year's shoot, with a fork standing so that the sun from east to west shines through; it can be cut only between three and four in full moon Sunday morning. He that gathers it must walk in silence, with his face to the east, bowing three times and saying: "God bless thee, noble spray and summer's bough."³ This form of divination was practiced, though forbidden,⁴ among the ancient Israelites, and is mentioned in close connection with the worship of trees.⁵

Planting or dedicating trees to the memory of heroes or great events is the most modern form of tree worship. The "Charter Oak" in Connecticut, the "Liberty Elm" of Boston Common, the Ash trees of Mt. Vernon, the Penn tree in Philadelphia, are instances in our own country of making trees the "monuments of history and character."

This, given in the briefest and most unsatisfactory form, is the evidence. The question to be considered is: How came man to have such thoughts and feelings toward the trees? Spencer answers, "Plant-worship, like the worship of idols and animals, is an aberrant species of ancestor-worship—a species somewhat more disguised externally, but having the same internal nature;" and Grant Allen supposes trees to have become objects of worship by their association with the graves of the revered ancestors. But surely trees were believed to be sentient beings, and regarded as possessing a power which could be used to the disadvantage of man, long before ancestor-worship could have been possible or immortality conceived, because long before man had drawn any clear distinction between material and spiritual. Spencer himself, and Darwin as well, would give the germs of religious feeling to the higher

¹ Mannhardt: *Baumkultus*, pp. 222 and 46.

² Friend: *op. cit.*, p. 112.

³ Grimm: *loc. cit.*, p. 975.

⁴ Hosea 4:12.

⁵ Hosea 4:13.

animals. But it would hardly be claimed that animals can retain for very long any thought of dead comrades, their imagination of objects not present to the senses being very limited. Nor have we any reason to suppose that their waking intelligence is greatly influenced by their dreams. In fact they are far from being capable of making any such abstraction as spirit apart from body.

To make ancestor-worship the origin of religion seems to be the exact opposite of the process which mental evolution has followed. Man did not begin with the distinct notion of himself as a being separate from all else in the universe, and later proceed to endow the objects surrounding him with his own mental characteristics. Rather, all nature was to him one, other animals and objects possessing the same mental qualities and powers as himself. Only much later did he begin to differentiate himself, and the real question is not, Why should primitive man have believed trees to be spirits? but, Why should he not? and How came it about later that he did not? And the real answer seems to be that man, through his developing self-consciousness, has got out of his primitive mental relation to the universe, has evolved an egoism which thinks the object of its own self-contemplation to be the only thing worthy of consideration and deprives all things else of the powers and qualities which are called "high," that is, of everything except materiality.

Primitive man, before he began to philosophize, or to analyze himself, was a part of nature, not knowing nor feeling himself a separate and higher thing than the rest of nature about him. He was a part or an element of the great unity; other things around him were similar to himself—able to think and feel. Why should he not ascribe life and spirit to such objects as trees which grew as he did; which possessed the power of motion within limited spaces; which uttered sounds no more unintelligible perhaps than the language of foreign tribes; which expressed by movements such emotions as anger or joy, that he himself showed by similar gestures? Why should not the strength of an oak inspire him with the thought that it was a powerful spirit? The distinction between body and spirit even in himself was vague at first; and is so still in the lowest races. Only to a very limited extent is abstract thought possible. The attributes of spirituality, as distinguished from those of materiality, are not well defined in the savage mind. Their gods, for example, are mortal, like men. This lack of mental ability in discrimination was conducive to the massing of all objects of nature under general characteristics, such as the man felt and knew in himself. It would be very improbable that he should be able to mark himself off clearly as a

different sort of being from others in nature with which he lived in such close contact. Only when he began to conquer nature and turn it to his account, and the philosopher awoke in him, did he begin to perceive himself superior to his environment. Only when he began to reason about his own soul, and lose his close relation to external nature, did he begin to question the possession of souls by the objects about him. Only when he turned his gaze within, and lost his former perspective, did he begin to imagine that *he* was the universe. The reversion from this perverted view is only taking place in the second half of the nineteenth century. The poets have never quite lost sight of the thought that man is only an essential part of the great unity of nature, and to them the trees, the flowers, and the streams, have ever been living things, of thought and feeling, desire and will. Children, too, representing the childhood of the race, have always believed trees to be alive and sentient, as a later section shows. Not only children, but even men of primitive stamp, show their atavistic belief in the intelligence and morality of inanimate things by kicking in anger an object that has injured them.

The general appreciation of nature, however, has grown up only within the memory of those living, and the philosophic thought of unity in the world is a modern concept. Along with this has come an appreciation of the myths of primitive peoples and a sympathetic understanding of their value in disclosing the mental life of the races from which these legends have descended.

This conception reverses the method of viewing the question of the origin of tree-worship, and of religion in general. Instead of the theory of the origin of worship which begins from the human side and makes the worship of other objects of nature merely secondary and accessory, through association, the present supposition would substitute a broader basis in the whole of nature, and carry the origin of the religious feeling far back to the pre-primitive period when man, just merging into humanity, did not consciously differentiate himself from all nature. The great gulf between man and lower nature, as he chooses to call it, has been fixed by man himself only in the later stages of his intellectual development.¹

The pedagogic import of this is evident. Children are already and naturally in sympathetic *rapprochement* with nature. Our training of them must contain enough *letting alone* to allow this attitude toward nature to continue. This reverence for nature, and feeling of *at-home-ness* with her, is one aspect of the child-like

¹ These pages were written before I had seen Dr. Tylor's chapters on Animism. I am glad to find that part way we travel the same road.

spirit which surely need never be outgrown. Scientific dissection and classification of objects is as artificial and unsuited to child-mind as similar abstraction and generalization would be to the lowest savage.

From tree spirits to tree worship is an easy transition. When trees are regarded as powerful spirits, able to do good or evil, the primitive intellect is not slow to recognize the necessity of appeasing the wrath, and the advantage of gaining the favor, of such beings. Prayers and offerings are a natural consequence, and dendrolatry arises out of animism. No doubt in an age when the struggle for existence was fiercer and had fewer of the humanizing characteristics of civilized times, the gods, too, like men, were regarded as chiefly malignant, and this thought still survives in the variety of evil spirits, as elves, witches, dwarfs, lyeshy. But the good offices of trees, in furnishing shelter, protection, and food, were also recognized, and tree-spirits came to be regarded as predominantly beneficent. The sacred trees still worshipped in the times when subjective and objective are more clearly differentiated, are direct survivals of this mode of thought ; and the divining rod unquestionably gets its magic powers from its being the branch of a sacred tree. Trees planted in honor of some hero or dedicated to the memory of a national event, become objects of reverence by association. They are the representatives of the spirits held sacred.

It may be that trees do not stand on an equality with other objects of nature, with regard to animistic beliefs. The voices of the leaves, and the movement of the branches, of course give trees a greater likeness to men than noiseless and immovable objects possess. But in addition to this it is possible, in accordance with the preceding sections, that trees may hold a specific relation to man, that no other natural objects have. Man's arboreal life may have evolved certain intellectual and emotional characteristics, suggestions of which we still find in primitives and children. It may be, for instance, that the feeling of safety from enemies, afforded by the trees, developed an instinctive attitude toward these protecting objects, which survived far beyond the time of arboreal life, forming a basis in the evolving consciousness, of a special regard for trees, and a feeling that they were more powerful and more friendly than other spirits. Suggestions of this are seen in the great predominance of good tree-spirits over evil, and the universal worship of trees among primitive peoples, and in the unaccountable fondness of children for trees.

IV.

THE LIFE-TREE.

Out of these relations between the tree and human life there comes another. We have only to carry the notion of tree-spirits a little farther to get a race of men born from the trees. In the earliest stages of primitive life the tree itself is believed to be a spirit. This, when the distinction between body and soul begins to be made, grows into the conception of a spirit inhabiting the tree. Later this spirit, as in the case of the Greek dryads, is able to leave its dwelling for a time, but cannot maintain its life quite apart from this habitation. This connection between life and tree, which has thus been growing less intimate and necessary, is at last entirely broken by a continuation of the same process; but a tradition of the earlier relations remains, and we have the myth of a human race descended from trees. Of the almost universal existence of such a myth there is ample evidence.¹

In Norse legend the first human pair, Ask and Embla, were born of two trees, an ash and an elm, found on the sea-strand by Odin and his brothers. From these all mankind are descended.² Similar to this in Greek mythology is the formation of the brazen race by Zeus out of ash trees.³ Both Greeks and Romans had a belief of origin from the oak. Virgil writes:

"These woods were first the seat of sylvan powers,
Of nymphs, and fauns, and savage man, who took
Their birth from trunks of trees and stubborn oak."⁴

In Persian legend Ormuzd gave souls to a plant which had first grown up as single, and afterward divided into two. These became Maschia and Maschiâna, the parents of the human race.⁵ The Mayas say they are "the sons of the trees," and an American Indian myth makes man spring from the trees. The Aztecs revered the tree-form, calling it the "tree of our life." The Mexicans believed the human race to have arisen from the seeds of their sacred moriche palm. In many parts of Germany a hollow tree is believed to be the abode of unborn infants. In a Finnish fairy-tale a foundling is called *punhaara*, tree-branch.⁶ The poet's unity with nature suggests to him the same mystic relation.

¹ Dr. Hall suggests to me that the myth of creation from trees might have arisen from the fact of earliest human life having been supported by the fruit of trees.

² *The Younger Edda*, tr. by Anderson, 1880, p. 64.

³ Hesiod: *Works and Days*.

⁴ *Æneid*, VIII, 314-5.

⁵ Mannhardt: *Baumkultus*, p. 7.

⁶ Grimm: *op. cit.*, p. 1451.

" I care not how men trace their ancestry,
 To ape or Adam ; let them please their whim ;
 But I, in June, am midway to believe
 A tree among my far progenitors—
 Such sympathy is mine with all the race."¹

The same subtle sympathy was felt by Hawthorne toward the ash trees shading the manse at Concord.

The opposite process, of the transformation of mortals into trees, finds equally numerous illustrations. The sisters of Phaëton, changed into poplars, bewailing the death of their brother, on the banks of the river into which he had been hurled ;² Daphne, transformed into a laurel, to escape the attentions of Apollo ; Cybele, in anger changing her lover Attis into a pine, whose perpetual verdure was bestowed by Zeus in compassion for the remorse of the goddess ; Philemon and Baucis, whose spirits were transferred into trees, so that neither might witness the death of the other ;³ the beautiful Thracian queen Phyllis, expiring of grief for the unfaithfulness of her husband, and transformed into an almond tree on the shore where she awaited his coming,—these and many others are classic examples. Buddha's many incarnations in trees have already been mentioned. Japan has a story of a faithful pair, who after enjoying many years of happiness, died at the same moment, their spirits passing into a tall pine, which a god had once planted in passing that way. On moonlight nights they may still be seen gathering the pine needles under the tree which is called the " Pine of the Lovers."⁴ The Chinese have a legend telling how a husband and wife were transformed into cedars in order to perpetuate their love. A secretary of the king had a young and beautiful wife whom the king coveted, and to gain possession of her the secretary was thrown into prison, where he died of grief. To escape the king's attentions the wife threw herself from a high terrace, having left a request that she should be buried beside her husband. This the king in anger refused to grant, but from the two graves, though widely separated, there sprang two cedars which in ten days grew so tall and vigorous that their roots and branches interlaced, and the cedars were henceforth called " the trees of faithful love."⁵ Among some South Sea Islanders the cocoa-nut tree is believed to be a transformed god, whose eyes and mouth appear in the fruit. The white kernel is commonly called " te roro o Tuna," *the brains of Tuna*.⁶

¹ Lowell.

² Ovid: *Metamorphoses*, II, 346-366.

³ Ovid: *op. cit.*, VIII, 711 *et seq.*

⁴ Mrs. Philpot, p. 83, quoting Rinder's *Old World Japan*.

⁵ Folkard: *op. cit.*, p. 274.

⁶ Gill: *op. cit.*, pp. 77-9.

From these two conceptions—creation from trees and transformation into them—arises the more specific notion of a sympathetic connection between the life of a person and that of some particular tree. A Czech story tells how a child, born of a mortal and a tree nymph, was able to hold converse with her mother by means of a pipe made from twigs of the willow tree which her mother had inhabited. Among the Romans it was usual to plant a tree at the birth of a son, and this custom is still prevalent in America, England and France, as well as in Italy. In Switzerland an apple-tree is usually planted for a boy, and a pear-tree for a girl. The life of the child is believed to be so intimately associated with that of the tree that he will thrive or fade according as it flourishes or withers.¹ The Dyaks of Borneo plant a palm; in Bali a cocoanut tree is planted and called the child's "life-plant." Such trees are cared for with an almost superstitious devotion. Byron believed that his life and prosperity were bound up in an oak planted when he first visited Newstead, and on its fate depended his. The sycamore tree of the Cary sisters is well known.

The sympathetic relation sometimes extends to whole tribes or sects, as in the case of the patrician and plebeian myrtles before the temple of Quirinus, whose vigor depended upon the fortunes of the two political parties; or the weeping willows in sympathy with the sorrows of the Israelites.² The Italian belief that the bay-tree withered and died at the approach of a national calamity is preserved by Shakespeare.

" 'T is thought the king is dead; we will not stay.
The bay-trees in our country all are withered.'"³

Every one knows the mediæval legend that the aspen, being compelled to supply the wood of the cross, has never since ceased to tremble.

The earlier connection of trees with family interests is illustrated by the prevalence of family names derived from trees, as Linde, Eichbaum, Birkmayer, in Germany, and the English Holyoake, Ash, Maple, Rowan, etc., and is emphasized by folk-tales which give rise to such stories as Julian Hawthorne's *Kildurm's Oak*.

The curative power of trees, and the sympathetic connection existing between a tree and a child who has been passed through a cleft branch, will be mentioned later.

¹ Mannhardt: *Baumkultus*, p. 50.

² Ps. 137:2. In its name, *Salix Babylonica*, the willow preserves the memory of this incident by the waters of Babylon.

³ Richard II, Act. II, Sc. 4.

V.

THE WORLD-TREE.

The conception of a world-tree is so wide-spread that it must have arisen independently among different peoples. It arose perhaps as an explanation of how the heavens were supported and the stars kept in their places. Many children think that the sky is held up on the tree-tops.

The Scandinavian ash, Yggdrasil, is the best known of the universe-trees. "By this tree is the chief and most holy place of the gods, where they meet in council every day. It is the best and greatest of all trees; its branches spread over all the world, and reach up above heaven. Three roots sustain the tree and stand wide apart; one root is with the Asas (gods), and another with the frost-giants; the third reaches into Niflheim (nether world); under it is Hvergelmer (fountain) where Nidhug (serpent) gnaws the root from below. But under the second root, which extends to the frost-giants, is the well of Mimer, wherein knowledge and wisdom are concealed. The third root of the ash is in heaven, and beneath it is the most sacred fountain of Urd. Here the gods have their doomstead. The Asas ride hither every day over Bifrost (rainbow), which is also called Asa-bridge . . . Thor goes on foot to the doomstead and wades the rivers.

When he goes to judge
Near the Yggdrasil ash;
For the Asa-bridge
Burns all ablaze,—
The holy waters roar.

The red which you see in the rainbow is fire burning over Bifrost. The frost-giants and the mountain-giants would go up to heaven if Bifrost were passable for all who desired to go there. Many fair places there are in heaven. . . . There stands a beautiful hall near the fountain, beneath the ash. Out of it come three maids, who shape the lives of men, and we call them norns. Good norns and of good descent shape good lives, but when some men are weighed down with misfortune the evil norns are the cause of it. . . . On one of the boughs of the ash sits an eagle who knows many things. Between his eyes sits a hawk that is called Vedfolner. A squirrel, by name Rata-tosk, springs up and down the tree, and carries words of envy between the eagle and Nidhug. Four stags leap about in the branches of the ash, and bite the leaves. More serpents than tongue can tell gnaw the roots of the tree. The norns that dwell in the fountain of Urd, every day take water from the fountain, and take the clay that lies around the fountain, and sprinkle therewith the ash, in order that its branches may not

wither or decay. This water is so holy that all things that are put into the fountain become as white as the film of an egg-shell.

Thence come the dews
That fall in the dales.
Green forever it stands
Over Urd's fountain.

When Odin sits in his high seat he sees over all the world. In the southern end of the world is the palace which is the fairest of all, and brighter than the sun. It shall stand when both heaven and earth shall have passed away. In this the good and the righteous shall dwell through all ages."¹ In Valhal is a chest which contains the golden apples which the gods must eat to make them young again.

The inhabitants of the tree are supposed to be natural phenomena. The serpent Nidhug who gnaws the root in the lower world is volcanic force; the stags who bite the leaves and buds are the winds; the eagle and the hawk are the air and the ether; the squirrel running up and down the tree is hail; the leaves of the tree are clouds; its fruit, the stars; the swans swimming in the fountain typify sun and moon.

Perhaps the oldest world-tree known is that which grew at the mouth of the Euphrates, near a city which flourished three or four thousand years before the Christian Era. To plain-dwellers the tree is the loftiest and most impressive object in their experience, and it is suggestive that the origin of this world-tree is located in the garden of Eden, on the plains bordering the Persian Gulf. The fragment of a hymn reads:

"(In) Eridu a stalk grew overshadowing; in a holy place did it become green;
Its root was of white crystal, which stretched toward the deep.
(Before) Ea was its course in Eridu, teeming with fertility;
Its seat was the (central) place of the earth;
Its foliage was the couch of Zikum (the primeval) mother.
Into the heart of its holy house, which spread its shade like a forest,
hath no man entered.
(There is the home) of the mighty mother who passes across the sky.
(In) the midst of it was Tammuz.
(There is the shrine) of the two (gods)."²

The roots of this tree reached down to the watery deep, the dwelling place of the god of wisdom, Ea; on the branches rested Zikum, the primordial heavens, and below was the earth. The trunk of the tree was the home of Day-kina, the great mother, and of Tammuz her son, whose temple mortals might not enter. Such a conception must have come from a tree-

¹ *The Younger Edda*: trans. by Anderson, 1879, pp. 72-76.

² A. H. Sayce: *Religion of the Ancient Babylonians*, The Hibbert Lectures, 1887, p. 238.

worshipping nation. "The mighty stem in which the great gods dwelt was but a poetical amplification of the sacred spirit-inhabited tree, and arose out of the same idealizing process as that which gave birth to the nearly-related tree of knowledge and tree of life."¹

In the Indian cosmogonies there are world-trees of many names, as emblems of immortality and of universal life—sacred trees bearing ambrosia, the food of the gods, growing beyond the mystic river whose waters give eternal youth ; cloud-trees with shadows producing day and night before the creation of the sun or moon, growing in the midst of flowers and rivers, imparting all riches and knowledge, satisfying all human longings, and conferring perfect bliss ; universe-trees, which become, in the Rigveda, Brahma himself, with all the other gods branches of the divine stem. Closely parallel with these is the world-tree of the Buddhists, giving wisdom, furnishing immortal food, protecting the souls of the blessed. It sparkles with precious stones, the stars, and is laden with divine flowers. Under this tree it was, that Buddha fought his battle with the tempter, on a night forever after sacred to the Buddhists, and gained the victory which gave him possession of the tree of knowledge and the freedom which comes through truth. Very similar also is the Haoma of the Zoroastrians, planted in heaven by Ormuzd, scattering its thousand seeds to all the parts of the earth ;² and the sacred tree of the Assyrians, Phœnicians and Israelites, which represented the great Deity, and was worshipped as a symbol of Him.³ China and Japan have their universe-trees, the former a huge pine growing at the center of the world, the latter seven miraculous trees conferring immortality.

But ancient and oriental nations are not the only peoples among whom is found this conception of a tree overshadowing and protecting the world or yielding the fruit of wisdom and immortality. Traces of such a tree are found in Russian legend—a tree whose root is the power of God and whose top sustains the heavenly ocean of air, the earth and hell. Among the Finns the Kalevala, their national epic, tells how a mighty oak sprang from a magic acorn planted by Wainamoinen, raised itself above the storm-clouds, dimming the sunlight, hiding the moonbeams, causing the stars to die in the heaven, until the hero, alarmed at its growth, appeals to his mother, the wind-spirit, who sends forth a dwarf grown into a giant, whose

¹ Philpot: *op. cit.*, p. 112.

² Sacred Books of the East, edited by Max Müller, Vol. XXIII, *The Zend-Avesta*, Pt. II, p. 173.

³ Folkard: *op. cit.*, p. 6.

might overcomes the oak. It falls and its power to bestow good is only then discovered :

“Eastward far the trunk extending,
Far to westward flew the tree-tops,
To the south the leaves were scattered,
To the north its hundred branches.
Whosoe’er a branch has taken
Has obtained eternal welfare.
Who secures himself a tree-top
He has gained the master-magic.
Who the foliage has gathered
Has delight that never ceases.”¹

Even among the North American Indians there are traces of such a tradition. A tribe of New Mexico has in each of the six points of the world (the four compass points, zenith and nadir), a mountain bearing a tree—spruce, pine, aspen, cedar, and two oaks. At the foot of each tree dwells a “cloud ruler,” attended by a priestess of the tribe whose duty it is to intercede with the god to send rain.² The connection here between the tree and the sky is so evident as to suggest that the primitive gods came to be believed to occupy a position *above* the earth through their having inhabited the trees. The highest objects in nature, that are not separated from the earth, are trees and mountains. But mountains were not believed to be inhabited by spirits as trees were. They do not possess the life and movement of trees, nor grow as trees do. They have no voices, and cannot show anger as trees do in a storm. In these things trees are like men, to the primitive mind, and their importance far surpasses that of inanimate objects. It seems more probable, then, that the gods have reached the sky through the trees than by the mountains or by means of any other natural objects.

VI.

THE PARADISE-TREE.

Closely connected in thought with life-trees and world-trees are the trees of Paradise. If men are born from trees, our ancestors would naturally be thought to have had their original home amongst trees. If the tree of the universe had its topmost branches in heaven, the conception of a Paradise might easily grow out of this form of tree-worship. The sorrows of human life, and its disappointments, its ceaseless toil without recompense of love or pleasure, creates in the heart a longing for some happy, far-off land where blessedness abides. What more natural than that this should be found

¹ *Kalevala*, 2nd Rune, trans. by John Martin Crawford, N. Y., 1891.

² *Bureau of Ethnology*, Washington, 11th An. Rep., p. 28.

with the gods, beneath the trees which dropped ambrosia, in a garden of fragrance watered by life-giving springs and rivulets. That many peoples had such a conception, as the dwelling-place of the gods, of their own first parents, or as their future abode, is unquestioned. In a tradition of the Parsis the first man and woman, who were born from a tree, were placed in Heden, where grew the Tree of Life which gave strength and immortality. The Hindoo religion has a garden of the great god Indra, containing the trees which first grew out of the troubled waters at the beginning of creation, with their life-giving fruits and beautiful flowers. The chief of these trees was the Paridjata, whose flower was fresh all the year through and gave to each person his favorite color and perfume. Besides insuring against hunger or thirst, it had uses more spiritual for it was a test and token of virtue, losing its freshness in the hands of the wicked and preserving it with the upright.¹

The Paradise of Mahomet is in the seventh heaven. In the center of it is the great tree Tooba, so large that a man could not ride around it on the fleetest horse in a hundred years. This shows its close relation to the immense universe-trees. This tree affords shade to all Paradise, and bears fruit of a size and taste unknown to mortals. The branches even bend low to bestow their delicacies at the wish of their inhabitants. From this tree the rivers of Paradise flow with milk and honey, water and wine.² The Zend-Avesta has two Haoma trees; one yellow or golden, which is earthly and the king of haeling plants; the other the white Haoma or Gaokerena, which grows up in the middle of the sea, surrounded by ten thousand healing plants, by drinking the juice of which on the resurrection day men become immortal.³ It was from this celestial tree that the full perfection of the world arose. It is "the counteractor of decrepitude, the reviver of the dead, and the immortalizer of the living."⁴ The Japanese have a similar legend of an Island of Eternal Youth from which a tree rises high above the waters; endless springtime is there and the miracle of spring in other lands is caused by the whisper of the spirit of this island.⁵ In the Hebrew Paradise, the garden of Eden, stood the tree of life in the center.⁶ The significance of this tree no one really knows. According to the Rabbins it was a supernatural tree of such vastness that no man could

¹ Folkard, p. 10.

² Folkard, pp. 10-11.

³ *Zend-Avesta*, Pt. 1, Vol. IV of *Sacred Books of East*, p. LXIX.

⁴ Vol. V, *Pahlavi Texts*, Pt. 1.

⁵ Mrs. Philpot, quoting Rinder's *Old World Japan*.

⁶ Gen. 2:9.

travel round it in less than five hundred years. From beneath it gushed forth the waters of the earth refreshing and invigorating all nature.¹ It resembled in fact the world-trees of the previous section. Others make it emblematic of the life that Adam and Eve received from God. At any rate it resembles the Paradise-trees of other nations in yielding a fruit which would confer everlasting life, for after the transgression of eating the forbidden fruit of the tree of knowledge of Good and Evil, and thereby making themselves unworthy of a continued existence in a garden of delight and near the presence of the Lord, the first parents were driven from Eden lest they should put forth their hands "and take also of the Tree of Life and eat and life forever."² The Christian sacred scriptures use the Tree of Life with the same signification: "to him that overcometh will I give to eat of the Tree of Life which is in the midst of the Paradise of God"³—a direct reference to the loss of the privileges of Eden through disobedience and the regaining of the lost heritage through faithfulness. The conception has a further point of parallel with the sacred trees of other nations in the healing properties of its leaves, mentioned by Ezekiel several centuries before Christ, and later in the apocalypse.⁴

Growing by the Tree of Life in the garden was the forbidden tree of knowledge of Good and Evil,—“good for food and . . . pleasant to the eyes, and a tree to be desired to make one wise,”⁵—the identity of which has given rise to so much speculation. The prevailing tradition makes it an apple tree, though the Bible offers no support to this.

A Jewish legend tells how Adam at the age of 900 overtaxed his strength in uprooting a large bush, and feeling that death was threatening him, sent his son Seth to the angel guarding the way to the Tree of Life, to ask for some of its fruit to renew his strength. Seth was given three seeds and charged to place them in Adam's mouth when he was buried. These grew up as an olive, a cedar and a cypress, but their existence was not known until the time of Moses who was ordered to cut them down. Moses, and afterwards David, performed many miracles of healing with these rods. They later grew into one tree and furnished the wood for the cross of Christ. This legend preserves the fundamental idea of the eternal-life-giving power of the Tree of Paradise. An interpretation, ingenious if fanciful, of the first chapter of Genesis makes the tree of life the human body,

¹ Folkard, p. 13.

² Gen. 3:22.

³ Rev. 2:7.

⁴ Ezek. 47:12; Rev. 22:2.

⁵ Gen. 3:6.

and the flaming sword which turned every way to guard it the blood. A similar explanation, quoted in Warren's *Paradise Found*, makes the brain the tree of life, and the blood the water of life. An idea related to this, and carried out in detail, is found in one of the sacred books of the East. A forest has seven large trees of seven fruits, seven guests, seven forms of concentration and of initiation. The probable interpretation is that the forest represents life, with the trees as the five senses, the understanding, and the will,—called trees because producers of the fruits, namely pleasures and pains, derived through them. The guests are the powers of each sense personified, the forms of concentration are the exclusion from the self of the functions of the senses, and the initiations are the entrance into the higher life by repudiating as not one's own the actions of these senses. When this forest disappears, that is, when the senses have become absorbed into the self, another tree springs up, which is intelligence and whose fruit is emancipation and shade tranquillity.¹ This again expresses the fundamental idea of the paradise tree, namely everlasting life, but in this case according to the Hindu conception of it as Nirvana.

In all these growths of religious thought concerning immortality and happiness the central idea is the tree, and the attainment of the life of unending felicity is by partaking of the fruit of this tree. Placing beside this the primitive notion that heaven was not far away, and that its occupations were similar to those of earth, we have the necessary material from which to draw the conclusion, actually arrived at by many peoples, that heaven could be reached by climbing a tree if one could only be found tall enough. The Accadians pictured the sky as the counterpart of their own Babylonian plains; the sun was a ploughman yoking his oxen to his glittering plough, and the planets were sheep.² The Bedouins of Arabia believe that the jinni, who live near the lowest heaven, can hear the conversation of angels.³ The Mbocobis of Paraguay believe departed souls to go to heaven by the tree that joins it with earth, entering by the holes through which the rain descends,⁴ and the Idaan of Borneo reach paradise by crossing a long tree.⁵ The Khasis of India have a legend which makes the stars men who have climbed to heaven by a tree.⁶ Milton's picture would allow of such an interpretation :

¹ *Bhagavadgītā, Sanatsugātiya and Anugītā*, pp. 285-6.

² Sayce: *op. cit.*, p. 48.

³ Bent: *Nineteenth Century*, Oct., 1895, p. 608, *The Land of Frankincense and Myrrh*.

⁴ Tylor: *Early History of Mankind*, 1878, p. 358.

⁵ *Ibid.*, p. 360.

⁶ Mrs. Philpot, quoting Goblet d'Alviella's *Migration of Symbols*.

“Overhead up-grew
 Insuperable height of loftiest shade,
 Cedar, and pine, and fir, and branching palm;
 Yet higher than their tops
 The verdurous wall of paradise up-sprung . . .
 And higher than that wall a circling row
 Of goodliest trees, loaden with fairest fruit.”¹

The ascent to heaven by a tree is found in myths among peoples so widely separated that an independent origin must be admitted. To those given might be added the story current among the Wyandots of a boy who climbed a tree so high that he found himself in a beautiful country, where he caught the sun unawares in a trap set for game; the other sun-catcher, among the Dog-Rib Indians, who had climbed a tree in pursuit of a squirrel until he reached heaven; the Dyak who brought rice to mankind by climbing a huge fruit-tree which was rooted in the sky, with branches hanging to earth; the Malay legend of Kasimbaha who ascended to heaven on the rattan tree to recover his wife, a celestial nymph who had deserted him; and our own nursery tale of Jack and the Beanstalk, which is a disguised representative of this group of myths.² If such myths have arisen independently among many peoples, and are not the result of some happy inspiration of a single soul, their origin must have some natural cause. This is doubtless found in the fact of universal tree-worship in the earlier stages of civilization. The tree being thus a sacred object would be closely connected in primitive thought with the idea of a divine habitation, when the gods began to be farther removed from the earth; and if the idea of such a habitation as *upward* was already in men's minds, this would suggest a further connection. May we not, however, go farther back, and say that the idea of *up-ness* itself as an attribute of heaven, and later a symbol of goodness, owes its origin to tree-worship? The idea of the gods in council, ruling the world, is a much later conception than tree-worship. When it became necessary that an assembly of gods should have a more definite location, why should not that be chosen by the primitive mind where so many of the gods already existed, namely, above the earth? This does not conflict with the notion that deities were believed to be in the sky as early as upon the earth, that the sun was worshipped in as early an age as trees. But when fetishism grew into polytheism proper some explanation must be given of how the gods of the earth, which formed the great majority, found their general dwelling-place above the earth.

¹ *Paradise Lost*, Bk. IV, 137-147.

² Tylor: *Early History*, pp. 350-6.

VII.

THE TREE IN MEDICINE.

The tree has played an important part in the cure of diseases. The most common form of treatment has been the transference of the ailment, by some magic word or symbolic act, to the tree, or rather to the tree-spirit ; for here too we meet with the same underlying notion of the intelligence and personality of trees. They are believed to be subject to the same ills as those which afflict humanity ; if these ills, then, can be passed over to the trees, the suffering person is relieved. The method of this transference also is a survival from the primitive beliefs regarding the way in which spirits inhabit objects, and can pass from one to another. It belongs to a later period than that in which objective and subjective were identified ; a period, namely, in which the souls of men and of other objects were able to leave their usual dwelling-places, but could not exist without some habitation. As a consequence of this dependence of the spiritual on some material support, the transference of a man's disease to a tree which might happen to be distant could be effected by an object passing between the two as a medium. When possible, however, the afflicted person is brought into direct contact with the tree. All this is not merely an analogy, for when these methods were employed diseases were actually believed to be evil spirits, which were induced to leave the man when some other suitable dwelling-place was furnished them.

In England, not so long ago as a century, ash trees were split open and held by wedges while children were passed through as a cure for rupture.¹ These trees were often preserved with great care, a mysterious connection being supposed to exist between the tree and the patient.² In Austria the ceremony is more elaborate. A branch of oak is split open and the child passed through backward three times. The pieces are then tied together with the child's shirt and thrown on the fire, all being done in silence.³ In the middle ages a hole formed by the growing together of two branches was believed to be exceptionally efficacious, and such trees were visited from great distances. Near Wittstock stood a stout gnarled oak whose boughs had thus grown into each other, and all around the tree lay crutches that had been thrown away by those who no longer needed them.⁴ To crawl beneath a bramble which

¹ *Gentleman's Magazine*, June, 1804, and White's *Natural History of Selborne*, 1789.

² *Gent. Mag.*, Oct., 1804.

³ Conway : *loc. cit.*

⁴ Grimm : *loc. cit.*, p. 1167.

had formed a second root in the ground was said to cure rheumatism. For the whooping-cough the child must be passed from side to side seven times, during the repetition of some mystic words which transferred the cough to the bramble. In Thuringia to be cured of the gout one must climb a young pine and tie in the topmost branch a knot, saying: "Pine, I bind here the gout that plagues me." Another method is to go three successive Fridays after sunset under a fir tree and say to it: "Fir tree, I complain to thee, the gout torments me sore."¹ A Flemish cure for ague directs the patient to go early in the morning to an old willow tree, and tie three knots in one of its branches, saying: "Good morning, old one, I give thee the cold, good morning, old one." A fever is transferred to the elder by saying: "Lift thee up, elder bough! Antony's fire, sit on it now! I've had thee a day, thou have it alway."² In the island of Carpathus the Greek priest ties a red thread around the sick person's neck. Next morning it is removed by friends and tied to a tree on the hillside.³ In some of the East Indian Islands epilepsy is treated by striking the sufferer on the face with leaves, which are then thrown away, the disease going with them. Toothache is believed in Northern Europe to be cured by sticking an elder-branch into the ground with the words: "Begone, bad spirit." Ague is cured in the same way, and the next person who comes to the spot gets it.⁴ In Oldenberg a remedy for toothache is to bore the tooth with a nail until it bleeds and then drive the nail into an oak where the sun will not shine on it.⁵ Another cure for ague is to make a gash in a lofty willow, breathe into it three times, and closing it quickly, hasten away without looking back.⁶ The evil spirit is thus breathed into the tree and there imprisoned—this superstition being doubtless an outgrowth of the idea of spirit and breath being one. Similarly, contact with holes in the trees, through which the spirits pass in and out, is a very effective treatment of various troubles.

Prominent in folk-medicine is the belief in the magic powers of trees and flowers. The underlying thought is still that of an indwelling spirit in the plant, the good-will and co-operation of which is secured by certain invocations and ceremonies. In the *cure* of diseases this beneficent spirit of the tree, embodied usually in the fruit or a branch, is powerful enough

¹ Grimm: *op. cit.*, p. 1170.

² *Ibid.*

³ *Blackwood's Magazine*, Feb., 1886.

⁴ Grimm: *loc. cit.*, p. 1170.

⁵ Conway: *loc. cit.*

⁶ Folkard, p. 98.

to drive out the evil spirit of the disease ; in the *prevention* of ills, the tree-spirit prohibits the entrance of the other. Thus elder is worn as a protection against epilepsy ; a juniper-plant bearing green berries along with ripe ones is effective against smallpox and witches ; in Russia the chestnut is efficacious for backache and gout ; the sap of dogwood, absorbed in a kerchief on St. John's eve, will fulfill all wishes ; grass blades confer second sight, and the sod from which they grow is a protection against witches ; inimical to witchcraft are also the elder, hazel, mistletoe and holly ; in Cornwall mountain-ash is carried as a charm against the evil eye, and as a cure for rheumatism ; a beverage prepared from the mistletoe was thought by the Druids to be a remedy against all poisons, and this same magic plant, representing the general spirit of vegetation, is highly favorable to fertility in human and animal species. The ancient Persians regarded it as a universal healer.¹ The Zuffi Indians venerate a magical plant, the *Ténatsali*, which produces the most beautiful flowers of all colors, and is a cure for all ills.² The Bohemian poacher thinks he can make himself shot-proof by finding on St. John's Day pine cones on the top of a tree and eating one each day. It is a Suabian belief that the same result will be brought about by any one who on Friday of the full moon pulls up the amaranth and carries it folded in a white cloth against his breast.³ Scotch milkmaids wear mountain-ash charms as a protection against lightning, this custom originating in the resemblance of the red berries of the ash to the flowers of the sacred lightning-tree of the Hindoos.⁴ On the *Walpurgisnacht* German witches gather ferns to render themselves invisible.

In Cockayne's curious volumes on the *Leechdoms, Wort-cunning and Star-craft of Early England* are given many examples of the magic power of plants and trees. The juice of the Θεογγελις, or gospel plant, was drunk by the magi before divination ; the γελωτοφυλλις produced laughter ; the Θεών βρώσιον, food of the gods, kept the kings of Persia in health and vigor of mind ; another herb secured handsome and good children ; and Apollodorus knew a preparation that made fading love revive.⁵ He who sleeps under sacred trees receives in a dream such wisdom as leads to the restoration of his health.⁶ Sleeping beneath the boughs of the laurel, or on

¹ Bonwick : *Irish Druids and Old Irish Religions*, London, 1894, p. 236.

² Folkard, p. 109.

³ Dyer : *The Folk-Lore of Plants*, New York, 1889, p. 282.

⁴ Sara E. Wiltse : *Myths and Mother-Plays*, 1895, p. 31.

⁵ Cockayne, p. xiii.

⁶ Robertson Smith : *op. cit.*, p. 169.

mattresses composed of its leaves, brought prophetic visions and poetic inspiration.¹ The Sibyl who gave the answer of the god to those who sought counsel of the Delphian oracle, shook the sacred laurel, and sometimes ate the leaves, before becoming inspired. The Mandrake has always been thought to have a close and mysterious connection with human life, as may be seen even from its names, the English *Earthman*, German *Galgenmännchen* (gallows-man), Latin *Semihomo* (half-man), Greek *Anthropomorphon* (man-shape). It has always been supposed to possess supernatural powers, and to be the bearer of good fortune. It is still worn by the Greeks as a love-charm, and by many people is still believed, as it was by the Israelites 4,000 years ago, to be potent against sterility.

The sacredness of such plants and trees, that is, the power and good-will of the indwelling spirit, is the secret of their effectiveness as the bearers of good and preventers of evil. In view of this explanation one would expect to find plants whose magic powers produce illness or misfortune, since there are evil spirits in the vegetable world. This expectation is of course fulfilled, though the ill-disposed are found rather among herbs than trees, in accordance with the principle already deduced, that tree-spirits are on the whole beneficent.

VIII.

THE TREE IN CHILD LIFE.

If individual development is an abbreviated race-history, one should meet with some instructive parallels between primitive peoples and children, in their feelings towards nature. The returns to a syllabus sent out by President Hall in 1895, have made it possible to indicate with some assurance certain of these resemblances. That the notions and feelings of childhood are deeply tinged with animism there can be no question. Children ascribe to trees not only sentience, but intelligence, emotion, morality,—in a word, all the mental powers of which they themselves are possessed. To illustrate so general a statement, one must reproduce in some detail the child's feelings, as recorded by his elders, or by himself later in life.

That trees and flowers are believed to have physical feeling, and suffer when trimmed or cut down, is shown by replies which contain such phrases as these: Chopping down trees is cruel, for they feel pain as we do when injured; shame to hurt trees so; positive discomfort, at 18, to see trees trimmed; seemed as if their arms and legs were being cut off; disliked people who trimmed trees; must hurt large trees to fall so far

¹ Folkard, p. 106.

when uprooted by storm ; sap oozing out is tree crying or bleeding ; when tree was felled it seemed like the loss of a friend.

The likeness in the child's mind between the tree and himself is seen to be very close, and worked out in detail : the limbs, trunk and roots are its arms and feet, the leaves are its clothing, the bark its skin, from which when bruised or cut the sap oozes as blood. Such myths as that of the Greek hamadryads, whose life-blood was seen to flow from the injured tree, are here revived in the child-consciousness. But this personification of trees, which is merely myth or poetry to adults, is serious philosophy to the child. The resulting feeling of sympathy for trees and flowers, and readiness to champion their cause with the thought of relieving their suffering, is a trait which may well be encouraged in the boy and girl. The fact of its having so solid a basis in instincts that are the outgrowth of race history has probably contributed not a little to the success of Arbor Day.

The remarkable companionship and understanding between trees and children is illustrated by the confidence the children have that all this is appreciated by the trees : They like to have little boys and girls around ; make shade just for the children ; two big oaks watch over our house and take care of us ; spread their arms over us, like good mothers ; tree cried because lonesome ; get lonely if have not children to play around them. The birds and trees are close friends, and understand one another's needs and wishes : Birds the best playmates trees have, they sing so nicely and put the leaves to sleep, and the flowers ; trees glad when birds come back from South ; trees feel happy and honored when birds build nests in them ; try to stop the birds from going past, by holding out their hands to them.

A companionship between the trees themselves is many times mentioned. This includes a close sympathy and an understanding of one another's feelings and wishes. The interchange of thought through language sometimes extends only to trees of the same species, but oftener to all kinds : trees talk to each other just as people do ; they sometimes laugh loudly ; sympathize with one another when a branch is broken ; want to shake hands when they sway together ; love each other when they grow close together ; often say "good-night" to one another ; rustling of leaves is whispering of fairies who live in them ; wind blowing through branches is leaves singing their babies to sleep ; trees of same kind like to be planted next each other, for if an elm is planted near a maple it would be like putting an American girl with a little Dutch girl, and they would be lonely, not being able to understand. Trees can understand the children's talk, and the trees' language is usually intelligible to the child.

F., 6. Walking in woods, looked up suddenly to the leaves and said, "Oh, I am only going a little way." When asked to whom she was talking, replied, "Did n't you hear those leaves ask me where I was going?"

F., 10. When wind blows mournfully the leaves say, "I am sad, I am sad;" when branches snap they say, "I am mad, I am mad."

M., 4. "I love you, flowers, but you never say anything to me. When are you going to get old enough to walk and talk? Do you like me? Why don't you answer? You are the worst children I ever spoke to. I'll leave you all alone, and then you'll be afraid. Goodbye."

M., 10. Trees get angry at the wind, and scold and scream and slap it.

F., 5. Talks to trees by the hour, and understands their questions.

6-10. Favorite amusement of a group of children to sit under the trees and listen to the leaves tell stories.

The animism of childhood, which makes even the use of language possible between the child and the tree, surpasses even that of primitive peoples in the completeness with which the objects of nature are endowed with human attributes. Though animate nature had voices, yet they were rarely believed to be intelligible to man, except in such cases as the Greek oracles. It may be that the imagination of the civilized child is more active than that of the primitive adult, partly, perhaps, because the stimulus is more varied. But whatever the cause, the result can be turned to account by teacher and parent. If living thus close to nature brings the calmness of life and the sweetness of character, of which the poets tell us, it is surely worth our efforts to help the children retain their *naïve* attitude toward their world, by encouraging their direct contact with nature and by furnishing them with myth and legend to keep the actual from breaking in too early and too rudely upon them. Even for ourselves, if we are not too hopelessly past this stage, it might be a gain to throw off the artificiality and pettiness of life, and attempt to get back nearer to the heart of things and into closer harmony with the universe. Interpret the phrase as you will. To the Brahman it would mean something like the rest of Nirvana; to the every-day Christian, who sees the Creator in His works, it would be "peace in God;" to the philosopher it might be the feeling of comfort that he was catching a glimpse of the meaning of all things. From such moments we should go back to the world of men bearing some "sweetness and light," which, whatever be our philosophy of life, is a consummation to be wished.

The belief that living with the trees and the flowers has such an effect on character is supported by the careful observation of teachers, who are positive in their assurance that the children who do not believe trees to be alive and intelligent are the ones who lack the "finer feelings." A comparison of sexes as well

as of ages bears this out. The boy's nature is more apt to grow coarse than the girl's, and at an earlier age, and it is very noticeable that boys sooner than girls reach the period when they are ashamed of their animistic beliefs.

The sense of right and wrong is as evident as the intellectual endowments of trees. Some children think all trees and flowers good, but the consensus grants goodness only to those that are shady, or beautiful, or fruit-bearing, or that offer a protection to the birds. Those that are bitter, poisonous, prickly, unfragrant, or deceitful (*e. g.*, the candock making one believe it at a distance to be a water-lily), are accounted evil. This is a strongly utilitarian ethics, but has advanced beyond the egoistic stage. "Trees that cast no shadows are selfish," and selfishness is bad. This is a morality doubtless which has been already taught to the child, yet if he be a true representative of the race, he might in some measure, without instruction from elders, reach that standard, at the time when his life is epitomizing the stage of race-evolution which was no longer characterized by the fierce struggle for individual existence, but showed evidences of the higher struggle for the life of others.

The retribution which follows wrong doing is visited also upon the trees. Very often "crooked trees are bad ones, and God made them that way so that no one would love them."¹ In other cases crooked trees are merely unfortunate, and receive a great deal of sympathy. This difference of attitude may be largely due to the child's training, though partly to native kind-heartedness.

The feelings of reverence and worship in the child's heart it projects into the trees, finding analogies in the action. To them

"Nature with folded hands seems there
Kneeling at her evening prayer."²

F., 18. Once said after shower when everything was fresh: "How bright the flowers and trees are. They are looking up and thanking God for the rain. Don't you think so?"

F., 17. Thought the daisy was praying when it had its petals folded seemingly under its chin.

F., 17. Thinks God comes into the trees at times, out of the clouds when they touch the tree tops. All *white* flowers are angels.

M., 9. Wondered if the spirits of trees went to heaven.

M. The trees sing to the moon and stars.

F., 19. Flowers and leaves opened at night when they were kissed by the moon, which took all their tiredness away, and made them bright and happy.

¹ Among primitive myths it is common to find one in which the evil spirit made ugly and distorted trees while the great spirit was sleeping.

² Longfellow.

Social feelings and even conventionalities are not forgotten by the trees. They put on new dresses by changing color, get their dresses wet when it rains, put on green dresses because glad the birds are coming to build nests in branches, are ashamed when the leaves drop off.

The affection which children bestow upon the trees has been observed by every one, and need only be briefly sampled here :

M., 3. Can't pass a tree in his walks without putting his arms around it.

F. When 6 had been away for long visit, and when returning was so glad to see the big maples that she ran to each and hugged it, telling it how glad she was to see it again. Thought they, too, must have missed her, and been glad of her return.

F., 2. Used often to hug an old oak in the yard.

F., 18. When a child coming from play in the hot sun, would throw herself under the fine old tree in the yard and say, "you are a dear old tree for making it so cool here," and then jump up and give it an impetuous hug.

F., 6. When seen with her arms around a tree was told not to hurt it ; said, "I was n't hurting it ; I was only loving it because it had no friends to play with and talk to."

This emotional expression, which is so genuine and unrestrained in childhood, assumes that the tree has the same feelings as the child is expressing toward it, and shows this side of the companionship to be as close as that in the realm of intellect and will. This thought, which the child carries through consistently, that nature is instinct with life and intelligence, with emotions and volitions, is more inspiring, it would seem, than the later mechanical conception of inert matter. Not that the child-consciousness need be a copy of the primitive mind, in which animistic conceptions were usually connected with many revolting ceremonies. These were not the result of animism. *It* accompanies undeveloped intellect ; the grossness of the savage customs were the result of undeveloped morals. But intelligence and morality do not vary in direct ratio. A commendation of the results of an animistic conception of nature, therefore, does not involve an approval of the social life of savagery. Conditions are widely different for the child and for the early races of men, and not the least of these differences is that the child has leaders who can correct any tendencies to vice.

The assumption that practically all children believe trees to possess a psychic life similar to their own, may be questioned on the ground that only those who had such beliefs would reply to the questions circulated. But in point of fact teachers usually sent returns from all the members of their classes, regardless of the children's attitude toward the questions. Teachers, too, who have not sent individual returns report that of large classes of young children, every one thinks trees

to be "alive and able to feel and talk and love." Evidence is unquestioned, also, that such ideas have never been suggested to them. In homes, and indeed in whole neighborhoods, where the parents' lives, knowing little but daily drudgery, are hard and unpoetic in the last degree, the children have the same attitude toward the trees and flowers as in cultured homes, though the expression of such feeling would be met with but little encouragement. Under such conditions these feelings are more quickly smothered than though they could breathe an atmosphere of refinement and poetic appreciation.

The wide interests opened up to childhood by giving trees and flowers psychic life, and the depth and range of sympathy thus made not only possible but actual, as these returns show, place within reach of teacher and parent immense possibilities, in the line of the child's social and moral development; and an education which crowds out such feelings, or allows them to atrophy from disuse, is to be seriously questioned.

The influence of a great expanse of wood is distinct and peculiar. The feeling is described as one of awe, reverence, solemnity, and often a sense of peace. Children speak in hushed tones, walk as softly as possible, and even unconsciously restrain their breathing. The feeling of reverence is shown by such replies as:

M., 19. Ever since childhood entering a forest had a soothing influence. The denser the forest the more satisfied was he.

F., 17. Hushed and awed, and felt the peace that seemed to abide there. When in a deep forest feels as if she were a little thing in a great big world.

F., 6. Coming to deep woods dropped voice to a whisper, though previously talking quite loudly; when asked why, said "It feels like church."

F., 17. "A sweet sadness in forests that turned my thoughts toward God. Felt that I must be good there."

M., 4. When taken to park, after looking around at the trees and flowers asked if they might not sing "God is love."

In open fields the feeling is quite the opposite—one of exultant freedom. There is no restraint on feeling, and its expression is often the most boisterous. Children and even older boys and girls say they never felt so free as when in the fields; they like to run and tumble on the grass with perfect abandon, are always free to laugh and talk as much as they please, nothing is too loud there; even severe and dignified old men romp like little boys.

In fine gardens children enjoy the sight of the flowers, but have an "unfree" feeling. This, however, is chiefly the result of prohibitions regarding the flowers, and has not at all the same cause as the feelings inspired by the forest. The restraint

of the garden is artificial and the result of training, that of the forest is natural and the result of an instinct which grew up through many generations of forest life. We have sometimes been told that the impressive solemnity of the forest, which is illustrated by the children's feelings here recorded, was the cause of the ancients peopling the trees with spirits. But does not such an explanation begin at the wrong end? What is the cause of the solemnity? Why should the trees, merely as natural objects, cause such an awe? They may be beautiful and stately, they may be useful for shelter or shade, but a contemplation of them from these points of view would awaken no feelings of reverence. Nor would silence alone, nor the subdued light of the forest, bring the feelings of worship that are inspired at such a time. Darkness and quietude may cause fear but not reverence. At least after they have been allowed their full influence, there is still a residuum. If, then, external circumstances do not fully explain the feeling, the cause, or a part of it, must be elsewhere sought. We already have the clue. If the individual is recapitulating the history of the race, and if the race has passed through a very long period in which trees were worshipped and regarded as protecting spirits, then it is quite natural that there should linger, in the child, traces of a similar attitude toward the trees. Instead, therefore, of the forest being peopled with gods because of its mysterious impressiveness, it is mysteriously impressive because of having been formerly peopled by the gods, in the imagination of primitive man. Through the period of a few thousand generations during which the surest means of safety from enemies was flight into the trees, there would gradually grow up in the race an instinctive feeling toward the trees as natural protectors. Is not this feeling of *dependence* the very essence of religion?—or at least the origin of it, for we may not choose to call it religion until it takes a more definite shape as *trust in a being*, or beings, who are believed to be powerful. Even as low down in the mental scale as the apes there doubtless is this feeling of safety, and an association of it with the tree; and, certainly, less developed intellect than the lowest races of mankind now possess would be sufficient for the harboring of thoughts toward the trees as beings strong enough to protect against enemies, and consequently sufficient for the beginnings of the same trust and humility which constitute the truest reverence in the highest races of to-day's civilization. Such an instinct, growing stronger for many centuries, and still in vigorous life among primitive tree-worshipping peoples, would of course show strong traces of survival, even in the most advanced races, and as a matter of fact the forest still has its influence over us in adult days.

If the tree-worshipping period was preceded, as already suggested in the section on tree-spirits, by a time in which even the beginnings of reverence were not possible,—a mere animal stage of development in which fear was the dominant emotion, and the forest was looked upon as only a place where wild beasts lurked,—we ought to find ontogenetic evidence of this. And many of the younger children do speak only of a feeling of fear, even when they are accompanied by their elders and the woods are known to harbor no wild animals. This feeling of fear decreases with age, as that of reverence grows—suggesting again that the race did pass through such stages in its religious evolution, though, of course, the reverence in its purest form still contains elements of fear.

The religious feeling here shown is not to be disregarded by the teacher. Children all too soon, in our present society, reach the persistently self-conscious stage, and this develops into our chronically homocentric attitude. If we believe this to be too narrow, here is our opportunity to broaden it. The feeling of reverence takes us out of self toward the infinite, and this *greatens* life. Littlenesses are left behind ; there is no room here for sham. Whatever may be our particular beliefs the elements of religious feeling are the same, and they are present in such experiences, and give all subsequent life a greater meaning.

In addition to having particular trees to which they are devoted, and which frequently have a very special associational value, children usually have a favorite species of tree. The maple, pine and oak, are regarded with the greatest favor. The reasons for choices are various : some of them æsthetic, some practical, others purely animistic. Calling tallness, stateliness, gracefulness, evergreenness, beauty of leaves, rich coloring, etc., æsthetic qualities ; making shade and fruit practical considerations ; and classing all implied personifications—the bold strength of the oak, the tender sympathy of the pine, the sweet pathos of the willow—as animistic ; we should probably find that æsthetic considerations lead, in the determination of favorite trees. The animistic conceptions, however, are more fundamental, and of wider range, even if not so frequently advanced as a reason for favoritism. Young children, moreover, are not able to analyze their likes and dislikes, and too much dependence is not to be placed in their replies on this point. Even if what they say can be accepted, what they leave unsaid cannot be determined. The young children, for instance, more frequently speak of the beauty or prettiness of the trees, while the older ones oftener mention the stateliness. We cannot conclude that therefore the young children have no

feeling of sublimity. The expression of it might be quite beyond their power. With them the practical considerations are most easily expressed, and very frequently a tree is disliked because it bears no fruit. Boys sometimes dislike the pine-tree's "whine" and the "crying" of the willow. They are not so animistic and full of sentiment as the girls. There is probably in this a suggestion that the female mind, like the body, is more of a race-type than the male. It is true, also, that the boys' surroundings and work are likely to be more sternly practical than the girls'.

The frequent emotional characteristics attributed to trees, in cases where such attributes could hardly have been learned from an older person, suggest the appropriateness of plant language, and remind us of the universal use by man of "flowers for their charactery." Much of the symbolism of trees and flowers has a natural relation to some quality of the tree or flower—as the drooping willow expressing mourning, the clinging ivy as an emblem of fidelity, the trembling aspen as a type of fear, the whiteness of the lily suggesting purity. Not unfrequently, however, without any natural connection, some incident forms an association which is never lost; as in the case of the juniper representing protection, from Elijah's having been sheltered by it in his flight from Ahab; the sycamore denoting curiosity since the time of Zacchæus; the olive as an emblem of peace, having been given to Judith when she restored peace to the Israelites, or possibly because of its connection with the oak; the linden denoting conjugal love, through its association with Philemon and Baucis; the rose as the universal symbol of love, connected with the story of Venus and Adonis. Sometimes a symbolic meaning is attached to a flower through a mere accident of language, as pansies, from the French *pensées*, thoughts.

The oak is about the only tree which is disliked by no one, so far as the children's verdict goes. It is admired for the beauty of its leaves, for its boldness, strength and noble bearing. The child's feelings may contain the suggestion of a reason why the oak, of all trees, held the most sacred place in earlier civilizations. It would be regarded as the most powerful spirit, with no unpleasant characteristics to detract from the feelings of reverence which it inspired.

The moral effect of the trees is worth emphasizing once more. Ruskin puts it strongly: "No one can be far wrong in either temper of mind or way of life who loves the trees enough," and Longfellow says

"The silent majesty of these deep woods . . .
Shall uplift thy thoughts from earth;
As to the sunshine and the pure, bright air
Their tops the green trees lift."

IX.

THE TREE IN POETRY.

The personification of nature, so common and even so essential in poetry, is only a modernized form of animism, with some of the literalness removed from the meaning of the language. A century ago, when the relation between man and nature was less intimate than now, the nature-literature was artificial and lacked genuineness. The present poetic feeling of being "with nature's heart in tune," is well illustrated in Thoreau's companionship with her: "Every little pine needle expanded and swelled with sympathy, and befriended me. I was so distinctly made aware of the presence of something kindred to me, even in scenes which we are accustomed to call wild and dreary, and also that the nearest of blood to me, and humanest, was not a person nor a villager, that I thought no place could ever be strange to me again. . . . Why should I be lonely? Is not our planet in the Milky Way?"¹ Here is the beginning of that feeling of oneness with the universe which is in the very essence of great poetry. The influence of this feeling is none the less real because it cannot be expressed and only vaguely suggested. It is, in fact, because of the depth of this feeling that expression fails.

"There is a pleasure in the pathless woods,
There is a rapture on the lonely shore . . .
To mingle with the universe and feel
What I can ne'er express, yet cannot all conceal."²

"Man is a part of creation and finds his own moral harmony in that of the universe. One must feel either love or religion in order to appreciate nature."³

"I have felt
A presence that disturbs me with the joy
Of elevated thoughts. . . . Therefore am I still
A lover of the meadows and the woods
And mountains; . . . well pleased to recognize
In nature and the language of the sense
The anchor of my purest thoughts, the nurse,
The guide, the guardian of my heart, and soul
Of all my moral being."⁴

This feeling of affinity with nature has often taken definite shape in the metaphysical thought that if the smallest part of nature could be fully understood it would furnish a key to the secret of the universe :

"To see a world in a grain of sand
And a heaven in a wild flower."⁵

¹ *Walden*, London, 1886, pp. 130-1.

² Byron.

³ Madame de Staël.

⁴ Wordsworth.

⁵ Blake.

"Little flower—if I could understand
What you are, root and all, and all in all,
I should know what God and man is."¹

The vague longing after the infinite, which the presence and companionship of nature brings to the heart, becomes a striving upward, a spiritual aspiration away from the narrowness of the actual. Even if we did not need the trees to warm our bodies, we should need them to warm our souls, says Dr. Bauer.

"Welcome, ye shades! Ye bowery thickets, hail!
Ye lofty pines! ye venerable oaks!
Ye ashes wild! resounding o'er the steep;
Delicious is your shelter to the soul."²

"Go forth under the open sky, and list
To nature's teachings."³

"There is a serene and settled majesty in woodland scenery, that enters into the soul, and delights and elevates it, and fills it with noble inclinations."⁴

"The tremendous unity of the pine absorbs and moulds the life of a race. . . . Whatever elements of imagination, or of warrior strength, or of domestic justice, were brought down by the Norwegian and the Goth against the dissoluteness or degradation of the south of Europe, were taught them under the green roofs and wild penetralia of the pine."⁵

To the Christian poet the upward leading of nature is a leading toward God:

"The meanest floweret of the vale,
The simplest note that swells the gale,
The common sun, the air, the skies,
To him are opening Paradise."⁶

"There is a lesson in each flower,
A story in each tree and bower;
In every herb on which we tread
Are written words, which, rightly read,
Will lead us from earth's fragrant sod
To hope, and holiness, and God."⁷

"There lives and works
A soul in all things, and that soul is God. . . .
Nature is but a name for an effect,
Whose cause is God. . . . not a flower,
But shows some touch in freckle, streak or stain
Of His unrivalled pencil."⁸

¹ Tennyson.

² Thomson.

³ Bryant.

⁴ Irving.

⁵ Ruskin.

⁶ Gray.

⁷ Cunningham.

⁸ Cowper.

As a result of this nearness to the heart of nature there comes a soothing from care, a rest from the dust and the heat of the common-place day, an elevation of soul above trivialities, a noble purity born of great thoughts : " Children need, in their innocent up-springing, to have room to get away from the garish sun, and rest, as upon a mother's bosom, in the twilight silence of the growing woods."

" There is a quiet spirit in these woods
That dwells where'er the gentle south wind blows."¹

" As the leaves of the trees are said to absorb all noxious qualities of the air and to breathe forth a purer atmosphere, so it seems to me as if they drew from us all sordid and angry passions and breathed forth peace and philanthropy. There is something nobly simple and pure in a taste for the cultivation of forest trees. It argues a sweet and generous nature."²

" The presence of the love of nature is an invariable sign of goodness of heart and justness of moral perception ; wherever the feeling exists it acts for good on the character to which it belongs."³

" The loss of these tastes is a loss of happiness, and may possibly be injurious to the intellect, and more probably to the moral character by enfeebling the emotional part of our nature."⁴

These quotations are selected merely to illustrate, in a general way, the poets' feelings toward nature. The prose selections are poetic in spirit if not in form. The thesis is, that the poets, like the children, live close to nature and take her seriously, as a companion, capable of giving and receiving sympathy. This grows into the larger spirit of companionship with the universe, which calls forth the highest in the soul and gives a sense of harmony which is the deepest religious feeling and which produces a restfulness that is, or is akin to, the " peace of God, which passeth all understanding." It has already been suggested that the reason of this close relation between nature and spirit is to be found far back in primitive times when trees were worshipped as powerful and protecting spirits.

It remains to express my obligations to President Hall for the suggestion of this problem, for the use of the children's replies previously collected, and for much sympathy and encouragement throughout. To other members of the Clark Faculty also I am indebted for valuable references to literature.

¹ Longfellow.

² Irving.

³ Ruskin.

⁴ Darwin.